

FEBRUARY 28, 2001

**RESPONSIVENESS SUMMARY
CONCERNING EPA'S FEBRUARY 8, JUNE 23, OCTOBER 11,
AND DECEMBER 8, 2000 PUBLIC NOTICES CONCERNING
A PROPOSED MERCURY TMDL
FOR THE SAVANNAH RIVER IN GEORGIA**

**Agency's Specific Responses in Terms of Modifications of the Proposed Action or an
Explanation for Rejection of Proposals Made by the Public:**

EPA originally proposed the Savannah River Mercury TMDL on February 8, 2000 and in response to significant public comments that were received, the TMDL was revised and re-proposed on December 8, 2000. Because the December 8, 2000 TMDL represents a significant change in approach from the February 8, 2000 TMDL, many of the comments received on the original TMDL are either no longer relevant or were superseded by comments submitted by the same commenter in response to the December 8, 2000 TMDL. In the following summary, EPA has responded to comments on the original proposal that are still relevant to the re-proposed TMDL and that were not superseded by the re-proposed TMDL. The summary also responds to comments received on the December 8, 2000 TMDL proposal.

Because EPA received a significant number of comments on the TMDL, the comments and responses have been categorized and grouped under the following seven headings:

- A. Comments related to whether the Savannah River was appropriately included on the State of Georgia's Section 303(d) List of impaired waters;
- B. Comments related to EPA's interpretation of Georgia's water quality standard;
- C. Comments related to the wasteload allocation contained in the Savannah River mercury TMDL;
- D. Comments related to NPDES permitting issues;
- E. Comments related to Laboratory/Sampling activities;
- F. Comments related to the Margin of Safety;
- G. Other/Miscellaneous Comments.

FEBRUARY 28, 2001

Following this section of grouped comments and responses are the specific comments received on the December 8, 2000 TMDL and the comments received on the February 8, 2000 TMDL that are still relevant.

A. Comments related to whether the Savannah River was appropriately included on the State of Georgia's Section 303(d) list of impaired waters

A.1. Comment: EPA has exceeded its **statutory authority by developing a TMDL for a water impaired predominantly by atmospheric deposition**. Section 303(d) was not intended to be used to address sources that are not directly regulated under the Clean Water Act, such as air sources.

Response: EPA disagrees with comments asserting that EPA lacks the statutory authority to establish a TMDL for waters impaired by atmospheric deposition. Clean Water Act section 303(d)(1) and EPA's implementing regulations require listing of all waters that are not expected to achieve applicable water quality standards after application of technology-based and other required controls. Water quality standards adopted by states under CWA section 303(c), by their nature, are not identified with particular categories or sources of pollution, but rather express a desired condition of the receiving water. Similarly, EPA's TMDL regulations do not make any distinction between pollutants associated with sources directly regulated under the Clean Water Act (i.e., point sources) and sources not directly regulated under the CWA (i.e., nonpoint sources, including atmospheric deposition). See 40 C.F.R. 130.7(c)(1)(ii) ("TMDLs shall be established for all pollutants preventing or expected to prevent attainment of [applicable] WQS[.]"). They expressly require States to establish, as part of their TMDLs for substandard waters, both wasteload allocations (applicable to point sources, 40 C.F.R. 130.2(h)) and "load allocations," defined as "[t]he portion of a receiving water's loading capacity that is attributed either to one of its existing or future nonpoint sources of pollution or to natural background sources," 40 C.F.R. 130.2(g). Facilities that emit pollutants directly to the air are not currently subject to NPDES permitting requirements for those air emissions. Therefore, their loadings are reflected in the TMDL in the form of load allocations, like a nonpoint source. To the extent that these comments question EPA's regulations, which have been in existence since 1985, they are outside the scope of this action. In a recent decision, a U.S. District Court recognized EPA's authority to require listing and TMDL establishment for waters that fail to meet applicable water quality standards, even due solely to nonpoint sources. See Pronsolino v. Marcus, 91 F. Supp.1337 2d (N.D. Ca. 2000).

FEBRUARY 28, 2001

EPA's consistently held interpretation that nonpoint sources are included in the Section 303(d)(1) and 303(d)(2) listing and TMDL processes is further reflected in a series of administrative guidance documents. See, e.g., Technical Guidance Manual for Performing Waste Load Allocations at 3-110 (1983) (FSER 196) (for purposes of writing allocations, "the sources may be combinations of point and nonpoint sources or exclusively point or nonpoint sources"); Guidance for Water Quality-Based Decisions: the TMDL Process at 2 (1991) (FSER 78) ("A TMDL should be developed and appropriate control actions taken on *all* pollution sources"; "the TMDL can be used to establish load reductions where there is impairment due to nonpoint sources") (emphasis added); Supplemental Guidance on Section 303(d) Implementation at 2 (1992) (FSER 112) (303(d) process "applies equally to segments affected by point sources only, a combination of point and nonpoint sources, and nonpoint sources only"); Guidance for 1994 Section 303(d) Lists at 1 (1993) (FSER 117) ("The section 303(d) list provides a comprehensive inventory of waterbodies impaired by all sources, including point sources, nonpoint sources, or a combination of both."); Water Quality Standards Handbook at 7-7 (1994) (a "allocates allowable loads to the contributing point and nonpoint source discharges"); New Policies for Establishing and Implementing Total Maximum Daily Loads, at 5 (1997) ("Implementation of load allocations for nonpoint sources * * * is essential"); National Clarifying Guidance for 1998 State and Territory Section 303(d) Listing Decisions, at 6 (1997) ("Consistent with long-standing EPA policy, regulations, and practice, States should include waterbodies impaired by nonpoint sources alone[.]"). The 1997 National Clarifying Guidance specifically recognized that "States should include water bodies that do not meet applicable water quality standards due entirely or partially to pollutants from atmospheric deposition." *Id.* at 2. Moreover, EPA has consistently applied these policies and regulations in many listing decisions under Section 303(d)(1)(A), as well as the approval of nonpoint source load allocations in numerous TMDLs, including the decisions and calculations that gave rise to the claims in this case.

The commenters contend that Congress' use of the terms "effluent limitations," and "daily load" in "total maximum daily load," plainly limit the application of Section 303(d) to point sources. This view is in error because it fails to take into account the purpose of Section 303, and makes the applicability or proven failure of the technology-based limitations identified in Section 303(d) to point sources a condition precedent to 303(d) listing -- neither of which Congress intended. Congress' decision to include on the 303(d) list waterbodies where effluent limitations are not stringent enough to implement water quality standards reflects the approach adopted in the 1972 Amendments: that effluent limitations occupy the first line of attack in cleaning up the Nation's waters and that, when that effort is inadequate, states must turn to the safety net of a water quality-based approach. Given that it is the insufficiency of technology-based effluent limitations that triggers the need for a TMDL, it is hardly surprising to find a reference to "effluent limitations" in the listing provision in Section 303(d). Moreover, the

FEBRUARY 28, 2001

applicability or proven failure of the technology-based limitations identified in Section 303(d) is not a condition precedent to 303(d) listing. See Dioxin/Organochlorine Center v. Clarke, 57 F.3d 1517, 1527-28 (9th Cir. 1995). Contrary to the commenters' contention that the effluent limitations identified in Section 303(d)(1)(A) limit listing under Section 303(d) to waters where controls are subject to those effluent limitations, by its plain terms, all that Section 303(d)(1)(A) requires for listing is that the technology-based limitations identified in Section 303(d) be inadequate to achieve water quality standards.

As noted above, section 303(d) requires TMDLs for those listed waters where the impairment is caused by pollutants. Therefore, when atmospheric deposition is the transport route for a pollutant entering a waterbody and the pollutant exists at a level that causes an impairment, then a TMDL must address in some fashion the contribution of that pollutant, including atmospheric deposition. Where there are loadings from atmospheric deposition, they contribute to the overall load of a pollutant within a waterbody and must be accounted for in the TMDL. Otherwise, the reductions in loadings may not be sufficient to attain water quality standards.

TMDLs themselves do not provide the authority for addressing impairments, including those caused by atmospheric deposition. Rather, TMDLs provide a process for identifying what load reductions are needed to meet water quality standards, including reductions from atmospheric deposition. TMDLs therefore do not override other Federal and State authorities and programs designed to address air sources, such as programs to implement provisions of the Clean Air Act. Rather, they are tool to assist Federal, State and local governments to identify applicable control measures that could be used to address the water quality impairment.

As illustrated by this TMDL, EPA does agree that, to the extent possible, load reductions from air sources should be dealt with under other programs designed to address air sources. This TMDL relies in large part on reductions expected to be achieved through application of standards promulgated under Clean Air Act sections 112 and 129 that are expected to result in significant reductions in loadings of hazardous air pollutants to the nation's waters. See Analysis of Atmospheric Deposition of Mercury to the Savannah River Watershed (EPA 2001).

A.2. Comment: Several commenters state that the **listing of these waters is inconsistent with EPA's October 24, 2000 memorandum** on using fish advisory data for 305(b) and 303(d) determinations due to the fact that the risk assessment parameters for the advisory were more stringent than those specified in the State's water quality standards.

Response: EPA disagrees with these comments. The listing of the Savannah River is consistent with EPA's October 24, 2000 memorandum. The October 24 policy memorandum provides that where the risk assessment assumptions in a state's fish consumption guideline/advisory are

FEBRUARY 28, 2001

equal to or less stringent than the risk assumptions used in calculating the water quality criteria, the waterbody should be listed on the State's CWA Section 303(d) list. Comparing the default values in EPA's methodology to the values upon which the State's fish advisory is based, EPA finds that the two are equivalent and that the water should be listed. The State's advisory is considered equivalent with EPA's methodology since the advisory uses a range of fish consumption rates (16.4 to 32.8 g/d) compared to a consumption rate of 17.5 g/d used in EPA's methodology. The advisory also uses a 30 year exposure assumption which is less stringent than the Federal methodology's 70 year exposure assumption used in developing the criterion. Therefore, since the State's advisory could be considered more protective by using a higher consumption rate than the federal method, but uses a less protective assumption for the exposure duration (30 years versus the federal 70 years), EPA has concluded that, on balance, the State's advisory is equivalent to the Federal methodology and, therefore, the waters should be listed.

A.3. Comment: One commenter argued that **use of fish advisories as a basis for determining a water to be impaired** and, therefore, listing the water on the State's 303(d) list will discourage States from issuing fish advisories.

Response: Section 106 of the Clean Water Act authorizes EPA to make grants to assist States "in administering programs for the prevention, reduction, and elimination of pollution." 33 U.S.C. § 1256(a). Under section 106(e)(1), EPA "shall not make" any such grant to a State that is not engaged in certain water quality-related monitoring activities and does not annually update the resulting data and include it in the report required under CWA section 305, 33 U.S.C. § 1315. Id. § 1256(e)(1). Therefore, EPA expects fish tissue monitoring to continue. Should a State fail to issue an advisory where credible data indicates such an advisory is necessary to protect public health, EPA could exercise its authority under CWA section 104(n) to issue the advisory in lieu of the State.

A.4. Comment: Several commenters point out that Georgia's fish consumption guidelines were not subject to rulemaking and **question whether the State intended the fish consumption guidelines to be used to determine impairment**. The commenters believe the use of the guidelines to establish impairment is of questionable scientific and legal validity. The commenters also state that Georgia has discretion to not list waters based on fish consumption guidelines.

Response: To EPA's knowledge, the commenter is correct that the fish consumption guidelines have not been subjected to state rulemaking, and the guidelines were intended as a tool to assist in protecting public health by issuing fish consumption advisories where the guidelines are being exceeded. States always retain the discretion on which waters to place on their 303(d) list, and it was Georgia's decision to list the Savannah River due to the presence of a fish consumption

FEBRUARY 28, 2001

guideline for mercury. EPA strongly recommended that the State list their fish consumption guideline waters, but the State could have chosen to disregard EPA's recommendation. This would have left EPA with a decision on whether to disapprove the State's list and re-issue the list including the fish consumption guideline waters. Had this occurred, EPA can speculate that the Agency would have likely disapproved Georgia's list, and reissued the list with the fish consumption guideline waters. However, on October 24, 2000, EPA issued a final policy memorandum providing that State fish consumption advisories are to be considered in developing a state's 303d list, and the policy memorandum provides a methodology for determining when the guideline indicates water quality impairment. As discussed above, listing this water is consistent with the principles outlined in that policy memorandum. Therefore, it is the Agency's current position that it is scientifically and legally valid to consider fish consumption guidelines for the purpose of determining impairment.

A.5. Comment: One commenter stated that **only 4% of the fish sampled in South Carolina exceeded the FDA target of 1 mg/kg** and that the water would not be listed under 305(b) guidelines because 10% of the fish did not exceed this value.

Response: EPA disagrees with this interpretation. First, the basis for listing the water on the State's 303(d) list is not related to the 1 mg/kg FDA Action Level. An appropriate comparison should be made to the State's guideline threshold of 0.23 mg/kg in Georgia and 0.25 mg/kg in South Carolina. Second, EPA's October 24, 2000 guidance on the use of fish advisories in Section 303(d) listing decisions compares the risk parameters used in setting the fish advisory levels to the risk parameters used in setting the water quality criteria, not on any percentage exceedance. Commenter is referred to the discussion above about the comparison of the risk parameters in this case.

A.6. Comment: Several commenters stated that the **waterbody is not impaired for fishing** since the impairment must be tied to fish tissue concentrations and fish consumption rates.

Response: EPA's October 24, 2000 guidance on the use of fish advisories in listing decisions provides the EPA's rationale for using a Fish Consumption Guideline/Advisory for determining that a water is impaired. Both of these factors mentioned by the commenter, fish tissue concentration and fish consumption rate, are taken into consideration. Using this guidance, the middle/lower Savannah River is considered impaired due to fish tissue residue values.

A.7. Comment: One commenter requested that **the listing of the waterbody be held off** until Georgia adopts a methylmercury water quality criterion.

FEBRUARY 28, 2001

Response: The State may re-evaluate its 303(d) listing of waterbodies for mercury in fish tissue after the State has adopted a human health criterion for methylmercury. The State cannot “wait to list” the waterbody since it is currently listed.

B. Comments related to EPA's interpretation of Georgia's water quality standard

B.1. Comment: EPA is precluded as a **matter of law from employing a water quality target of lower than 12 ng/l**. EPA has no legal authority to interpret Georgia’s narrative water quality criteria to establish the TMDL’s water quality target because Georgia has an applicable numeric water quality criterion for mercury. EPA has also failed to follow the appropriate administrative procedures in establishing this water quality target.

Response: EPA disagrees that its water quality target for this TMDL suffers from legal deficiencies. As discussed in elsewhere in these Comment Responses, Georgia has not adopted a numeric water quality criterion for mercury (or methylmercury) for the protection of human health. Georgia, however, has adopted a narrative water quality criterion to protect human health, which is found in Section 5(e) of Chapter 391-3-6.03. This narrative water quality criterion provides: “All waters shall be free from toxic, corrosive, acidic and caustic substances discharged from municipalities, industries or other sources, such as nonpoint sources, in amounts, concentrations or combinations which are harmful to humans, animals or aquatic life.” EPA has determined that the Savannah River contains levels of mercury – from municipal, industrial and other (*i.e.*, air) sources – at levels that are harmful to humans who consume fish from the River. Therefore, EPA has concluded that the Savannah River exceeds Georgia’s narrative water quality criterion for toxic pollutants. In view of that conclusion, EPA has the authority to establish a TMDL to address that impairment. Congress did not limit the term “applicable water quality standards” in CWA section 303(d)(1)(C) to standards based upon numeric criteria, and EPA’s 1985 regulations at 40 C.F.R. § 130.7(b)(3) define “applicable water quality standards” to refer to “those water quality standards established under section 303 of the Act, including . . . narrative criteria.” See also 40 C.F.R. § 130.7(c)(1) (“TMDLs shall be established at levels necessary to attain and maintain the applicable narrative and numerical WQS”). Indeed, the use of narrative water quality criteria has been explicitly recognized by the courts when applying “applicable standards” in the TMDL context, see Dioxin/Organochlorine Center v. Clarke, 57 F.3d 1517, 1521 & n.6, 1524 (9th Cir. 1995), as well as in the NPDES permitting context, see See, e.g., American Paper Institute v.

FEBRUARY 28, 2001

EPA, 996 F.2d 346 (D.C. Cir. 1993). Therefore, EPA is authorized to apply Georgia's narrative water quality criterion for toxic pollutants in establishing this TMDL.¹

Some commenters assert that EPA's interpretation of Georgia's narrative water quality in effect usurps the primary responsibility accorded to the states to develop water quality standards. They maintain that EPA's interpretation is tantamount to a revision of the state's adopted and approved numeric water quality criterion for mercury, and that this de facto revision is unlawful because EPA failed to follow the procedures established in Clean Water Act section 303(c) for adoption of federal water quality standards. These commenters conclude that the ensuing water quality target (and the TMDL) is invalid.

EPA disagrees with these comments. First, contrary to the commenters' assertions, EPA is not developing a federal water quality standard to supersede Georgia's standard, but rather is translating a water quality standard that has been duly adopted by the State and certified by the Attorney General. The state's direction that "[a]ll waters shall be free from toxic . . . substances . . . in amounts . . . which are harmful to humans" signifies the state's clear intent that this criterion be translated as necessary in order to be applied in the State's water quality based approach to pollution control (e.g., through the NPDES permitting process, the TMDL program or other applicable state programs). It means that a permit writer or TMDL-developing authority applying the narrative criterion needs to translate the narrative criterion and thus calculate the amount of a toxic pollutant that may be introduced to the water without producing a toxic effect in humans. That calculated amount thus becomes the target for the permit limit (or in the case of a TMDL, the target for the loading capacity) in fulfillment of the explicit intention of the narrative criterion: to avert toxic effects to humans. Thus, far from usurping the state's responsibility, EPA's act of translating the narrative criterion gives significance to the state's own regulatory structure.

The fact that Georgia has also adopted a numeric water quality criterion of 12 ng/l for the protection of aquatic life is irrelevant. The Savannah River is listed as not meeting uses designed to protect human health. Furthermore, as discussed elsewhere in these comment responses, EPA has determined, based on the site-specific data collected specifically for this TMDL, that a numeric value of 12 ng/l will not protect the health of individuals consuming **17.5** g/day fish from the Savannah River. Accordingly, while at one time EPA may have judged a value of 12 ng/l to be adequately protective of both aquatic life and human health

¹ EPA has no data showing that the Savannah River's numeric water quality criterion for the protection of aquatic life is being exceeded. Therefore, that criterion is not applicable to this TMDL.

FEBRUARY 28, 2001

uses in Georgia, its analysis of current data indicates that this is no longer the case. Therefore, EPA properly chose to apply Georgia's narrative water quality criterion for the protection of human health from the effects of toxics under these facts. EPA reasonably decided it would not be appropriate to ignore the narrative criteria applicable to human health merely because a less protective numeric criterion for aquatic life exists. The narrative and numeric criteria for mercury are complementary; in the absence of a numeric water quality criterion explicitly calculated to protect human health, it is appropriate to use the narrative criterion when human health is at issue.

EPA further notes that the federal water quality standards regulations at 40 C.F.R. Part 131 require adoption of water quality criteria that protect designated uses. Such criteria must be based on sound scientific rationale, must contain sufficient parameters to protect the designated use, and may be expressed in either narrative or numeric form. In adopting water quality criteria, States, Territories and authorized Tribes must establish numerical values based on 304(a) criteria, 304(a) criteria modified to reflect site specific conditions, or other scientifically defensible methods, or establish narrative criteria where numerical criteria cannot be determined, or to supplement narrative criteria. See 40 C.F.R. § 131.11. Narrative criteria are descriptions of the conditions of the waterbody necessary to attain and maintain its designated use, while numeric criteria are values expressed as levels, concentrations, toxicity units or other measures which quantitatively define the permissible level of protection. To adequately protect designated uses, EPA believes water quality standards must include both narrative and numeric water quality criteria. EPA has in the past and may in the future promulgate water quality criteria, including both narrative and numeric criteria for States, Territories or authorized Tribes. See 40 C.F.R. § 131.35; 54 Fed. Reg. 28622 (July, 7, 1989).

In certain circumstances it is possible that numeric water quality criteria can be met, and the designated uses still not be achieved. For example, factors such as food web structure, the concentration of dissolved organic carbon in the ambient water, and accumulations in the sediment may effect uptake of mercury into fish flesh on a site specific basis. In these circumstances, EPA recommends States and authorized Tribes translate the applicable narrative criteria on a site specific basis, or adopt site specific numeric criteria, to protect designated uses. However, ultimately, the final determination of whether the water quality standard is attained is made by determining the attainment of the designated use.

Second, as noted above, EPA's act of interpreting the State's narrative criterion ensures the level of protection established by the State for the Savannah River through the adoption of the designated use of fishing will be achieved. Accordingly, this is not a situation where EPA has – or should have – determined that Georgia's current water quality standards are inconsistent

FEBRUARY 28, 2001

with the Clean Water Act. To the contrary EPA has already determined that the Georgia standards met the requirements of the CWA and the implementing federal regulations when approving the narrative criterion providing “[a]ll waters shall be free from toxic . . . substances . . . in amounts . . . which are harmful to humans”. By using site-specific information, EPA is translating Georgia’s duly adopted narrative criterion in a way that ensures that the designated uses are protected as required by the Clean Water Act. The commenters imply that this situation is similar to one where a state had adopted and EPA had approved a numeric water quality criterion for the protection of human health that new science and/or data now shows to be unprotective. That is not the case. Rather, EPA is appropriately turning to the narrative criteria to account for the unique site specific conditions of the Savannah River as they affect the methylation and uptake of mercury into the food chain, and ultimately affect human health. Thus, in this case, and based upon site specific data, EPA properly decided to translate and apply the narrative criterion.

Third, EPA’s act of interpreting Georgia’s narrative criterion does not abridge public participation or otherwise deviate from the procedures associated with the adoption of water quality standards. As noted above, EPA is interpreting a criterion that was duly adopted by the state pursuant to section 303(c), which requires public participation. Thus, EPA is not establishing a federal water quality standard without regard for the requirements of the CWA or the APA; rather, it is translating the existing Georgia standard in order to establish a water quality target for the TMDL. Thus, the public participation requirements and rulemaking procedures of section 303(c) do not apply. Moreover, EPA has explicitly sought (and received) public comments regarding its interpretation of the narrative criterion, consistent with 40 C.F.R. §130.7(c)(1)(ii), thereby allowing scientific and policy issues to be aired. During the public comment period on this TMDL, affected dischargers, the general public, and other interested parties could and did submit information that they believe should be considered in calculating the water quality target. Elsewhere in this record, EPA has provided a written response to those comments. Moreover, the appropriateness of the water quality target based on EPA’s interpretation is subject to judicial review.²

² EPA also disagrees with comments that its interpretation of the water quality criterion constitutes a rule subject to procedures under the Administrative Procedure Act. As in any adjudicatory proceeding, the TMDL authority applies an existing principle of general applicability, in this case, the state narrative water quality criterion, to a particular situation, e.g., the development of a water quality target for the purpose of determining, for a particular pollutant, the loading capacity of and loading allocations to a particular receiving water. The calculated criterion and resulting water quality target then have precedential effect only to the extent justified by the facts of subsequent applications. As with a judicial decision – but unlike a rulemaking -- different facts could dictate a different result,

FEBRUARY 28, 2001

EPA notes that the CWA and the implementing water quality standards at 40 CFR 131 do not require that States, Territories and authorized Tribes adopt translator procedures for their narrative criteria. Where adopted into water quality standards, they are subject to EPA review and approval. Where not adopted into water quality standards but established as guidance, EPA reviews such procedures in reviewing and taking action to determine whether the underlying narrative criteria meet the requirements of the CWA and the implementing federal regulations. Such procedures must, in the final analysis, be scientifically defensible and protect the designated use. Some States, Territories and authorized Tribes adopt into their water quality standards translator procedures by which to derive a quantified numeric interpretation of the narrative criterion. However, others do not, or may chose to establish such procedures as guidance for interpreting the applicable narrative criteria site-specifically. The choice of whether and how to establish translation procedures is left to the prerogative of the State, Territory or authorized Tribe. EPA acknowledges that such a choice must be implemented consistent with State's governing administrative laws and procedures.

EPA also recognizes that narrative water quality criteria are not expressed as numbers and thus are not directly amenable to TMDL calculations. However, as expressed in EPA guidance, a State, Territory, authorized Tribe, or EPA can quantify narrative criteria for use on regulatory actions. EPA has also used such an approach in promulgating water quality standards for States, Territories and authorized Tribes. See 40 C.F.R. Part 132, Appendix F, Procedure 3 (referring to "values," which are that rule's equivalent to quantifications of narrative criteria); 60 Fed. Reg. 15366 (March 23, 1995) (Great Lakes Water Quality Initiative); 57 Fed. Reg. 60848 (November 19, 1991) (National Toxics Rule); see also Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90/001 (March 1991); Guidance for Water-Quality-based Decisions: The TMDL Process," EPA 440-4-91-001 (1991). Finally EPA notes States routinely rely on narrative criteria to implement whole effluent toxicity (WET) requirements (EPA/505/2-90-001 and 40 CFR 132, Appendix F, Procedure 6). WET is just one of several ways in which States translate narrative criteria to ensure that designated uses are maintained and protected. Therefore, EPA continues to believe that TMDLs can be calculated based on narrative criteria when those criteria can be quantified.

Fourth, EPA disagrees with comments asserting that EPA's interpretation is procedurally flawed because EPA did not promulgate a mechanism by which to "translate" Georgia's

i.e., a different calculated criterion and a different water quality target. See American Littoral Society, et al. v. EPA, No. 96-339 (MLC), slip op. at 52-61 (Dec. 21, 2000) (holding that EPA TMDL and listing decisions under section 303(d) constitute informal adjudications, not informal rulemaking).

FEBRUARY 28, 2001

narrative water quality criterion. EPA agrees with commenters that, had Georgia chosen to establish a specific translator mechanism for its narrative criteria (e.g., in order to bind permit writers or TMDL authorities when interpreting a narrative or to meet the requirements of CWA section 303(c)(2)(B)), it would have needed to do so as part of its water quality standards adoption process. See Water Quality Standards Handbook: Second Edition (1994), at 3-16, 3-22. However, Georgia has not adopted such a mechanism. Therefore, it was appropriate for EPA to interpret Georgia's narrative water quality criterion in the context of this TMDL. Under these circumstances, it would be inappropriate and intrusive for EPA to promulgate a regulation of general applicability that establishes a translator mechanism for Georgia's narrative water quality criterion.

Finally, EPA notes that calculating a water quality target based on a state's narrative criterion is analogous to the act of deriving water quality-based permit limits from such criteria. EPA has promulgated and successfully defended a regulation that describes three different approaches that permitting authorities can employ to interpret a state's narrative water quality criterion. See 40 C.F.R. § 122.44(d)(1)(vi); see also American Paper Institute v. EPA, 996 F.2d 346 (D.C. Cir. 1993) (upholding regulation as consistent with the purposes of the Clean Water Act). Two approaches are relevant here. One way is using the water quality criterion recommendations published by EPA under CWA section 304(a). See 40 C.F.R. § 122.44(d)(1)(vi)(B). A second way is to calculate a numeric criterion that the permitting authority demonstrates will attain and maintain applicable narrative water quality criteria and fully protect the designated use. See 40 C.F.R. § 122.44(d)(1)(vi)(A). Under this approach, the permitting authority may use a proposed state numeric criterion or an explicit state policy or regulation interpreting its narrative water quality criterion, supplemented with other relevant information, including predicted local human consumption of aquatic foods, the state's determination of an appropriate risk level, and other site-specific scientific data that may not be included in EPA's criteria documents. See id; see also 54 Fed. Reg. 23,868, 23,876 (June 2, 1989) (describing option). Under this approach, the authority interpreting the state narrative is authorized to employ any information that it believes will produce a limitation that will attain and maintain the water quality criteria and fully protect the designated uses. EPA has employed the second approach in interpreting Georgia's narrative water quality criterion, albeit for a slightly different – although related – purpose. Because the wasteload allocations in today's TMDL ultimately will become the basis for NPDES permit limits for certain dischargers, see 40 C.F.R. § 122.44(d)(1)(vii)(B), it is reasonable for EPA to apply the principles of the permitting regulation in the course of developing this TMDL.

B.2. Comment: EPA received several comments on the **use of the final Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health** (2000). Commenters stated that the Human Health Methodology came under strong criticism during the public comment period in

FEBRUARY 28, 2001

1998, and that the Methodology should not be used until further scientific review is completed and revisions are made. Commenters also specifically objected to EPA's use of a fish consumption rate of 17.5 g/day (instead of 6.5 g/day).

Response: The commenter has inaccurately described the final Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health (2000). EPA did, in fact, make substantial revisions to the August 1998 draft Methodology, based on both external peer review and public comments. The commenter suggested that EPA *refused* to follow the peer review recommendations, including their suggestion for a re-review (specifically, of the bioaccumulation portion). As stated in the Agency's Science Policy Council Peer Review Handbook (U.S. EPA, 2000), peer reviews can occur during the early stages of the project or methods selection, or as part of the culmination of the work product. EPA's external peer reviews are conducted to provide critical reviews of the assumptions, calculations, extrapolation, alternate interpretations, methodology, etc. pertaining to the specific major scientific and/or technical work product and of the supporting documentation. Peer reviews are not necessarily a consensus process. EPA has comprehensively followed its peer review procedures and, as indicated above, made many significant changes to the 1998 draft Methodology.

The commenter has also failed to point out that, in addition to criticism of the fish consumption rate, EPA received much support for the rates recommended. Specifically, there was substantial support for the new default rates as more accurately representing current levels of fish consumption among the general population than the old assumption of 6.5 grams/day. At the initial 1992 national workshop that EPA conducted to begin identifying areas for revision, one of the major components identified for revision was the fish intake default rate. At that time, many participants considered the 6.5 g/day value to be inadequate and advocated the use of much more recent data. Dietary information suggests that consumption of fish has increased since that time because of nutritional, cultural, and other preferential choices, and EPA has endeavored to identify more recent survey data. Since that time and throughout the revision process, the Agency has received consistently strong input from many of our stakeholders (including States and Tribes) to this effect, urging an update.

The Methodology's external peer reviewers questioned the use of short-term data for long-term fish consumption estimates. Specifically, the peer reviewers stated that short-term data do not "capture 'chronic' usual intakes" and are "not appropriate to use when estimating long term exposures." The peer reviewers instead recommended use of the Tuna Research Institute (TRI) data [cited in both the EPA/ORD *Exposure Factors Handbook*, and in the *Mercury Study Report to Congress* (MSRC) using food frequency data from the National Health and Nutrition Examination Survey (NHANES III)]. The TRI data the peer reviewers refer to is

FEBRUARY 28, 2001

actually the National Purchase Diary (NPD) study conducted more than 28 years ago to evaluate overall dietary choices. The NPD is the basis of the 6.5 g/day default value that EPA has historically used for freshwater/estuarine fish consumption and is the consumption rate that the Agency has been so strongly urged to change.

The peer reviewers recommendation of the NPD data somewhat contradicts another statement that “estimates are poor when the data are derived from older national surveys conducted for other purposes, but then adjusted to derive . . . AWQC.” The MSRC acknowledges that it is “rarely possible to measure a large number of days of dietary intake for individual subjects; consequently, a sample of one or several days is used to represent the true intake (Willett, as cited in USEPA 1997).” The report emphasizes that these samples are typically 24-hour recalls, 3-day recalls or records, or 7-day recalls or records. The MSRC indicates that data from such studies provide reasonable (unbiased) estimates of mean intake, but that standard deviations can be greatly overestimated. The MSRC indicates the potential for underestimating the *extent* of fish consumption due to the 3-consecutive-day limitation of the assessment but states that the dietary recall/record assessment provides “more precise estimates of the quantities of fish consumed that [sic] would be obtained with a food frequency record.” We are not aware of any subsequent major survey conducted during a 30-day period as was done by the NPD.

Several studies indicate that the quantities and types of fish consumed have changed over the past 28 years. Further, comparisons between the NPD data and newer studies are not possible. EPA specifically undertook an effort to acquire the NPD data to make such a comparison and found that some of the information is no longer available, including the survey sample weights. Without this information, comparisons are not possible.

EPA believes that the 1994-96 CSFII is the best source of data on a nationwide basis for estimating fish consumption by the U.S. population for several reasons. First, the survey design is structured to obtain a large, statistically representative sample of the U.S. population. Second, the 1994-96 CSFII provides 2 days of non-consecutive 24 hour dietary recalls. (The absence of multiple-day food intake data has been a prime reason for EPA being unable to use NHANES food consumption data.) Third, the 1994-96 CSFII provides recent estimates of food consumption. (While the NPD survey is an excellent survey, it was conducted 28 years ago and EPA believes that fish consumption has changed during that period.) Further, EPA believes that the dietary data collection method utilized by USDA for the CSFII 1994-96 is a superior data collection method developing out of continued research and evaluation by USDA. This entails using two interviewer-administered 24-hour recalls, using a multiple-pass approach designed to minimize under reporting of intake, collected 3 to 10 days apart.

FEBRUARY 28, 2001

The commenter incorrectly states that EPA did not examine site-specific information in developing the national default fish consumption rate. In fact, EPA did not rely exclusively on the CSFII data. Rather, the data were analyzed with those from other studies (especially for recreational fisher and subsistence fisher estimates) to evaluate and corroborate our decision. These included the MSRC, itself representing a substantial compilation of fish consumption studies, and numerous sport and subsistence fisher studies that were published along with the 1998 draft Methodology revisions. [Note: The MSRC inevitably relies on the CSFII data from USDA, along with the NHANES III estimates of fish consumption patterns (from the early 1990s) for making estimates on fish consumption in the general population.]

The commenter is also incorrect about the exclusion of respondents who did not report fish consumption during the sampling period. All of the default values include both CSFII respondents who reported eating fish during the sampling period and respondents who reported zero consumption. Further, the commenter has incorrectly assumed that if a CSFII survey respondent reported consuming fish in one of the three reporting days that were part of the CSFII 1989-91 surveys, then EPA would have assumed that the respondent eats fish every three days or “120 fish per year.” EPA has never made any such assumption. EPA believes that accounting for the respondents who ate fish during the survey period and those who did not is a reasonable method of estimating average consumption (as stated in the MSRC, see above). An assumption of 17.5 grams/day equates to 2.3 eight-ounce fish meals per month or approximately 28 meals per year, not the 120 suggested by the commenter.

As previously indicated, EPA’s fish intake rate includes the assumption that all of the consumed fish is taken from one particular waterbody. This is to ensure that any population can safely eat fish from waters designated for fishing, including those who may rely on a single source for their fish. The purpose of the assumptions is to ensure that if criteria are met in a waterbody designated with the uses specified in Section 101(a) of the CWA, fish consumers can safely eat fish from that waterbody. In addition to the assumption that 17.5 g of fish are consumed per day, EPA also assumes that fish and shellfish are taken from water with pollutants present at the criteria level. Again, in order to ensure that people can safely eat fish from waters designated with Section 101(a) uses, it is necessary to assume that all of the consumed fish is taken from waterbodies at the criteria level (i.e., contaminated to the maximum safe level).

EPA recognizes that fishing patterns (i.e., extent and location of fishing) and the degree to which fish and shellfish bioaccumulate contaminants from waters across the United States may differ from the exposure assumptions used to calculate national 304(a) water quality criteria. However, the degree and frequency of such variation are not clearly known, and these potential differences do not relieve EPA from its CWA obligations to develop national water quality criteria (which States and authorized Tribes may modify) that are protective for the general

FEBRUARY 28, 2001

population. Furthermore, we note that not all of these differences would lead to less restrictive (higher) AWQC. For example, some subpopulations may consume fish at a higher rate than the 17.5 g/day assumed in the national 304(a) criteria, and bioaccumulation might occur to a higher degree than the central tendency assumptions used in calculating the national default BAF. EPA does not believe that the data exist to enable the Agency to account reliably for the myriad of spatial and temporal differences in fishing patterns and bioaccumulation and subsequent differences in exposure to fish contaminants at the national level. In addition, EPA has not received information from any stakeholder that would allow the Agency to make such fine distinctions and to suggest a proportion of fish consumed that is actually contaminated or the levels at which those fish might be contaminated. Given the Agency's goal to ensure that populations who rely on a particular waterbody as the predominant source of their fish and shellfish are adequately protected, thus protecting the designated use of that waterbody, we believe that these assumptions are appropriate for the development of 304(a) criteria. Where States and Tribes have concerns regarding the level of protection afforded by CWA Section 304(a) criteria, EPA encourages States and authorized Tribes to make appropriate adjustments to reflect local conditions affecting fish consumption and bioaccumulation. Guidance for making such modifications is provided in the 2000 Human Health Methodology.

EPA believes that the CSFII data are adequately representative of fish intake rates among the general population for purposes of national criteria. The national default intake rate of 17.5 g/day will protect a majority of the population of consumers of fresh/estuarine finfish and shellfish, especially population groups who rely on a particular waterbody for most or all of their fresh/estuarine intake. It is EPA's goal to utilize an intake rate that represents more of the population than would a central tendency value. Thus, the Agency intends to derive national 304(a) criteria using this assumption (i.e., a 90th percentile value) based on the most recent national data available.

B.3. Comment: Several commenters stated that EPA failed to follow EPA's Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health (2000) in the **application of the BAF across trophic levels** in deriving the water quality target for this TMDL

Response: An assessment of the consumption patterns of the population in the Savannah River basin does not currently exist. As such, EPA made a decision to calculate the BAF using only trophic level 4 fish for two reasons. First, the species that are listed in the Georgia Fish Guidelines for the Savannah River are trophic level 4 fish. These are species which have mercury in their tissue that exceeds the State's guideline values, resulting in the recommendation that consumption of the fish be limited to protect public health. It is these trophic level 4 fish that led to the issuance of the State's guidelines, and to the listing of the water on the State's 303(d) list. Second, since data on the consumption pattern across the different trophic levels of fish

FEBRUARY 28, 2001

does not currently exist for the Savannah Basin, EPA made a risk management decision to assume that persons in this watershed consume 17.5g/d of trophic level 4 fish.

B.4. Comment: Several commenters stated that **EPA should have used the Georgia water quality criterion of 12 ng/l** since it was intended to protect public health and EPA had previously approved this criterion “as meeting all designated uses” in 1991.

Response: EPA approved Georgia’s aquatic life criterion of 12 ng/l in 1991. Georgia’s water quality standards regulation found at Chapter 391-3-6-.03 does not have a numeric water quality criterion for protection of human health, and no such criterion has been approved by EPA. In the 1991 approval letter for the aquatic life criterion, EPA indicated that the adopted aquatic life criterion was protective of all designated uses at that time. This understanding was based on the fact that, at that time, the interpretation of the Georgia narrative criterion found at Chapter 391-3-6-.03 Section (5)(e) would have resulted in a human health criterion no more stringent than the 12 ng/l aquatic life criterion. Since that time, a new body of evidence exists that the 12 ng/l aquatic life criterion is not protective of human health. This body of evidence includes the presence of multiple fish consumption advisories for the Savannah River, site-specific data on the ambient concentrations of mercury in the Savannah River and in fish tissue, EPA’s release of a final methodology for protection human health and new national criterion guidance regarding levels of mercury in fish tissue. Based on this body of current information, EPA has determined that an interpretation of Georgia’s narrative standard (Chapter 391-3-6-.03 Section (5)(e)) is the appropriate Georgia water quality standard upon which to base this TMDL. In order use the best available, sound science in interpreting this narrative, EPA used the Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health (2000) to interpret the water quality standard for this TMDL.

B.5. Comment: Several commenters stated that **Georgia intended the 12 ng/l aquatic life criterion to protect public health**, having calculated it by dividing the FDA action level by a bioaccumulation factor specified in EPA guidance.

Response: The commenter is correct that Georgia used this methodology to derive the 12 ng/l criterion for aquatic life. However, this does not indicate that Georgia intended to establish 12 ng/l as the criterion for the protection of human health. Georgia’s numeric human health water quality criteria are codified at Chapter 391-3-6-.03(5)(e)(iv). That section provides that instream concentrations of specified chemical constituents “shall not exceed criteria indicated below under annual average or higher stream flow conditions.” The regulation then sets forth water quality criteria values for 95 different chemical constituents. Mercury is not on that list. Instead, mercury appears only in Chapter 391-3-6-.03(5)(e)(ii), which protects against acute exposure at a 1-day, 10-year minimum flow, and against chronic exposure at a 7-day, 10-year

FEBRUARY 28, 2001

minimum flow (7Q10). The difference in critical flow conditions identified in subparagraphs (iv) and (ii) is significant, and indicates that subparagraph (iv) represents Georgia's numeric human health criteria. A 7Q10 design flow – which represents a low-flow situation in the receiving water – refers to critical conditions for aquatic life protection, when the concentration of pollutants in point source discharges tend to have the greatest adverse impact on aquatic life. It is not relevant for the protection of human health, when a harmonic mean flow, an annual average or similar long-term exposure condition is appropriate. In addition, Georgia did not codify in subparagraph (iv) acute water quality criteria values, as it did in subparagraph (ii). This is consistent with EPA's guidance and its own promulgation of water quality criteria in the National Toxics Rule at 40 C.F.R. § 131.36, in which EPA establishes primarily chronic values for the protection of human health. As a final indication of Georgia's intent to apply 12 ng/l only to aquatic life and not human health is the fact that at least one pollutant – arsenic – appears on both the aquatic life list under subparagraph (ii) and the human health list under subparagraph (iv), with the same criterion value in both lists. Had Georgia intended to apply 12 ng/l to mercury for the protection of human health, it is reasonable to assume that it would have treated mercury as it did arsenic – and specifically codified that value in the human health criteria listing in subparagraph (iv). For all of these reasons, EPA determined that Georgia had not adopted a numeric water quality criterion for mercury for the protection of human health and therefore needed to interpret Georgia's narrative water quality criterion for this TMDL.

B.6. Comment: One commenter stated that EPA should have used the **Georgia aquatic life criterion of 12 ng/l because it is protective of human health**, and that with such a small site-specific data set, the Agency has no basis for a different conclusion.

Response: With respect to the relationship between the 12 ng/l aquatic life criterion and human health, the commenter is referred to the response above. The data which was collected, while a “small” data set, was taken at a point in time that should be reflective of critical, steady state conditions in the watershed. The fish tissue concentrations were consistent with those reported from the States of Georgia and South Carolina. Based on these facts, EPA's use of site specific data to interpret Georgia's narrative water quality criterion for mercury was appropriate.

B.7. Comment: Several commenters argued that **EPA was inconsistent in its usage of the 12 ng/l criterion** because EPA has previously approved TMDLs in Alabama and Mississippi using the 12 ng/l.

Response: The commenter is correct that EPA approved a TMDL developed by the State of Mississippi based on an aquatic life water quality criterion of 12 ng/l. (Note: EPA has not approved a TMDL from the State of Alabama for mercury.) EPA has also approved a TMDL for mercury established by the State of North Carolina that was based on the State's 12 ng/l

FEBRUARY 28, 2001

aquatic life criterion. In each case, the TMDLs were established by states, not by EPA. In approving the TMDLs, EPA determined that the states' actions were reasonable. This does not mean that the TMDLs represent the only way the two states could have addressed the issue; nor does EPA's approval indicate what EPA would have done had it been responsible for developing the TMDLs. Having said that, however, EPA believes its decisions for the Mississippi and North Carolina TMDLs were reasonable and do not conflict with its establishment of a mercury TMDL for the protection of human health for the Savannah River.

North Carolina and Mississippi each have a duly-adopted water quality criterion for mercury for protection of human health. As such it will remain an applicable water quality criterion until the State revises it (and EPA approves the revision) or until EPA exercises its authority under CWA 303(c)(4)(B) to promulgate a replacement federal standard. However, in establishing their TMDLs, these States properly used their water quality criterion of 12 ng/l for the protection of aquatic life in order to protect the States' most sensitive designated use.

EPA recognizes that Mississippi's and North Carolina's current numeric human health criterion for mercury is considerably less stringent than EPA's recently published recommended section 304(a) water quality criterion for methylmercury. See 66 Fed. Reg. 1344 (Jan. 8, 2001). As noted in the *Federal Register* notice announcing the availability of the new criterion recommendations, EPA expects the States and authorized Tribes to use the section 304(a) criterion as guidance in adopting new or revised water quality standards. EPA expects States to adopt a new or revised water quality criterion for methyl mercury by early 2006 at levels necessary to protect human health. It should also be noted that while Mississippi and North Carolina used their aquatic life criterion as the basis for their TMDLs, both States added a large margin of safety to the TMDL to account for the lack of certainty regarding the protectiveness of their water quality criterion for impaired designated use in question (e.g., uses that provide for the protection of human health when consuming fish). Both States will be revising their human health criterion for mercury in the near future to ensure water quality criteria protective of their designated uses.

If a state has an applicable human health criterion that is protective of the designated use in question, EPA does not need to look beyond it to determine an appropriate water quality criteria protective of the designated use. When a State lacks a numeric water quality criterion for the protection of a designated use that is considered impaired, as in the case of Georgia, EPA must interpret the State's standard and identify a value sufficient to protect the designated use at issue. See 40 C.F.R. § 131.3(h) (defining water quality standards); 40 C.F.R. § 131.3(b) (defining criteria to include narrative statements).

B.8. Comment: One commenter asserted that **EPA employed a different methodology for the Mississippi Bogue Chitto & Escatawpa TMDLs** (FDA standard of 1.0 mg/kg methylmercury in

FEBRUARY 28, 2001

fish tissue instead of 0.23 mg/kg standard used for Georgia).

Response: Unlike Georgia, Mississippi uses the FDA action level of 1.0 mg/kg as the basis for fish advisories. Georgia, in contrast, uses a risk based calculation that results in 0.23 mg/kg as the basis for their Fish Consumption Guidelines. States have the discretion in their Fish Consumption Guidelines/Advisory programs to determine the fish tissue residue concentration that results in the issuance of a guideline or advisory. As states move to adopt a human health criterion consistent with EPA's new human health criterion, any inconsistencies among states in their fish consumption guideline/advisory programs are likely to diminish. In both instances (MS and GA), the TMDLs were established because the waterbodies in question are on the respective State's 303(d) list because they exceed applicable water quality standards, as indicated by the presence of the fish consumption advisory. As such, each TMDL was established at a level that would allow water quality standards to be achieved, potentially indicated by the removal of the fish consumption advisory for mercury for the waterbody in question.

B.9. Comment: One commenter asserted that the **Food and Drug Administration (FDA) admits that 1 mg/kg is considerably lower than levels of methylmercury in fish** that have caused illness.

Response: The citation provided by the commenter is from an article reprinted in May 1995. The statement above was related to acute neurological effects seen in adults. At the time of its publication, FDA was awaiting the conclusion of studies that examined the long term effects of low level mercury exposure in fetuses and infants. Since that time, the studies in the Seychelles and Faroe Island have been completed and concluded that significant neurological effects do occur at low level exposures. Therefore, it is likely that the FDA would not make the same statement at this time.

B.10. Comment: Several commenters stated that **EPA cannot deviate from the 1984 aquatic life criteria guidance value of 12 ng/l** or the 1998 published human health value of 50 ng/l for mercury without new rulemaking.

Response: EPA is not promulgating a new criterion for mercury for the State of Georgia. Rather, EPA has interpreted the existing and duly-adopted State narrative criterion at Chapter 391-3-6-.03 Section (5)(e). In doing so, EPA is charged with using a scientifically defensible methodology. EPA determined that the Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health (2000) was the most scientifically appropriate methodology for this purpose.

B.11. Comment: One commenter noted that **EPA apparently used a fish tissue concentration of**

FEBRUARY 28, 2001

0.4 mg/kg when setting the water quality target and asked that discrepancies in the TMDL be resolved.

Response: Commenter is correct. The fish tissue concentration that results from EPA's interpretation of Georgia's water quality standard is 0.4 mg/kg and the TMDL has been revised accordingly.

B.12. Comment: One commenter noted that **EPA is allowing South Carolina to use a value of 150 ng/l for its human health criterion even though it is based on cancer risk**, rather than child development effects.

Response: This issue is not relevant to the Savannah River mercury TMDL since this TMDL is being established for the State of Georgia and is based on an interpretation of Georgia's water quality standard. However, EPA notes that at the time of South Carolina's last triennial review, an RfD of 0.0003 mg/kg/d was recommended by EPA. The current recommendation from EPA is an RfD of 0.0001 mg/kg/d, which incorporates the child development effects. The State of South Carolina is currently undergoing a triennial review of its water quality standards and has incorporated this change.

B.13. Comment: Several commenters stated that **by not including Georgia in the National Toxics Rule, EPA was, in essence, stating that the Georgia criterion was protective** for human health.

Response: As was stated earlier, EPA's determination in 1991 was that the State of Georgia's aquatic life criterion of 12 ng/l was protective of all designated uses. This determination was sufficient to prevent Georgia from being included in the rulemaking known as the National Toxics Rule. As was also stated earlier, conditions have changed since that determination which now compels EPA to interpret the State of Georgia's narrative criterion at Chapter 391-3-6-.03 Section (5)(e) in order to ensure that human health is protected.

B.14. Comment: Several commenters claimed that the practical effect of using 2.83 ng/l as the water quality target for the Georgia side of the Savannah River is that **two criterion would be in effect for the same waterbody** i.e., 2.83 ng/l in Georgia and 150 or 12 ng/l in South Carolina.

Response: While it is possible that a waterbody shared by two states may have more than one applicable water quality standard, the TMDL must be established for the standard that applies to the waterbody in question (in this case, a value for 2.8 ng/l for the Georgia portion of the Savannah River). EPA recognizes that South Carolina presently has a human health criterion of 150 ng/l for mercury and that this is significantly higher than EPA's interpretation of Georgia's

FEBRUARY 28, 2001

narrative water quality criterion for mercury for the protection of human health (2.8 ng/l). As noted elsewhere in this comment response document, EPA expects South Carolina, in the near future, to revise its numeric human health water quality criterion for mercury to eliminate this discrepancy. In accordance with 40 CFR Section 131.10(b), States must ensure that the water quality standards it adopts provide for the attainment and maintenance of the water quality standards of downstream states. Since 2.8 ng/l is the applicable numeric interpretation of Georgia's narrative water quality standard for mercury for the protection of human health for the Savannah River, and the Georgia side of the Savannah River is "downstream" from South Carolina, the State of South Carolina must assure that its standards attain and maintain that downstream value. In addition, as discussed elsewhere in this record, South Carolina is subject to permitting regulations that require imposition of permit conditions that ensure compliance with downstream standards. See 40 C.F.R. § 122.4(d).

B.15. Comment: One commenter indicated that **because of the MCL of 0.002 mg/l for drinking water, drinking water could not be discharged into the Savannah River.**

Response: The MCL for mercury is for inorganic mercury and is based on an endpoint of kidney disease. The MCL does not account for conversion into methyl mercury in the environment and its subsequent effects because methylation is not expected to take place within the confines of a drinking water distribution system. Also, any drinking water that will be entering the Savannah River will be after consumer use through, in all likelihood, sewage treatment facilities. These discharges are accounted for in the TMDL.

B.16. Comment: One commenter stated that **EPA issued a new methylmercury water quality criterion, which is a residual fish tissue concentration of 0.3 mg methylmercury per kg in fish.** This new mercury criterion is considerably higher than the 0.23 mg/kg threshold level specified in Georgia's risk consumption guidelines, which EPA used as a basis for the TMDL. If EPA's criterion was used as the target for the TMDL, the commenter estimates that the mercury load reduction needed to achieve the water quality target in the Savannah River would be 30% less than EPA's estimated load reduction. This lower percentage reduction could be achieved without requiring reductions from the point sources on the river. Thus, the EPA new methylmercury criterion provides further support that EPA should not require loading reductions from point sources in this TMDL.

Response: The commenter is correct that on December 30, 2000, EPA issued a new mercury criterion guidance for protection of human health; this new criterion recommends 0.3 mg/kg as a fish tissue residue. (See Water Quality Criteria for Protection of Human Health: Methylmercury, EPA-823-F-01-001.) This water quality criteria guidance describes the maximum advisable concentration of methylmercury in freshwater and estuarine fish and

FEBRUARY 28, 2001

shellfish tissue to protect consumers of fish and shellfish among the general population. The new criterion was published during the public comment period for this TMDL, and as such, was not available to EPA Region 4 during the development of the proposed TMDL, which was released for public comment on December 8, 2000. Guidance to implement the new criteria recommendations are under development and will be released some time in the future. As noted in the Federal Register Notice announcing the availability of the new criteria guidance, EPA expects States and authorized Tribes to adopt new or revised human health mercury water quality criteria and to use the procedures and guidance contained in the forthcoming implementation policy to adopt their water quality criteria within five years from publication of the new criteria recommendations (in January 2001). EPA generally believes that five years from the date of EPA's publication of new or revised section 304(a) water quality criteria guidance is a reasonable time by which States and Tribes should take action to adopt new or revised water quality criteria necessary to protect the designated uses of their waters. See 63 FR 68353.

The commenter states that the new federal criteria for methylmercury of 0.3 mg/kg in fish tissue is considerably higher than the 0.23 mg/kg upon which the proposed TMDL is based. It is correct that the proposed TMDL interpreted the water quality standard from a fish tissue end-point, or fish tissue residue value, of 0.23 mg/kg. However, during the public comment period, it was raised to EPA's attention that, in interpreting the water quality standard based on the factors provided in the TMDL (i.e., a fish consumption value of 17.5 grams/day; an Rfd of .001, and EPA's estimated BAF of 4.9 million), the fish tissue end-point upon which the TMDL is derived is 0.4 mg/kg, not 0.23 mg/kg. In using the State of Georgia's fish consumption guideline of 0.23 mg/kg (one meal per week) as the fish tissue end point for the TMDL, EPA assumed the State's guidelines were based on a fish consumption rate of 17.5 grams/day, which is the updated fish consumption rate for the general population recommended in EPA's human health methodology. EPA believes this general population consumption rate is the appropriate consumption rate upon which to base this TMDL. In assessing the comments received regarding the TMDL's fish-tissue end point, EPA learned that Georgia's guidelines are based on a consumption rate of 32.5 grams/day for protection of the recreation population. On further evaluation, when Georgia's guidelines are "normalized" or adjusted to protect the general population of consumers (those that are assumed to eat 17.5 grams/day) rather than the recreation population of consumers (those that are assumed to eat 32.5 grams/day), the fish tissue end-point for the TMDL is 0.4 mg/kg. Since EPA believes that it is appropriate, in this instance, to establish a TMDL that protects the general population, the final TMDL has been revised to clarify that EPA's numeric interpretation of Georgia's narrative water quality standard (2.8 ng/l) is based on a fish tissue residue value of 0.4 mg/kg which protects the general population from the consumption of freshwater fish.

FEBRUARY 28, 2001

The commenter states that if the new federal methylmercury criteria was used as the target for the TMDL, it is estimated that the mercury load reduction needed to achieve the water quality target in the Savannah River would be 30% less than EPA's estimated load reduction. Since the commenter did not provide the basis upon which this estimated load reduction was made, EPA cannot specifically comment on the calculation; however, EPA disagrees with this comment and believes that use of the new methylmercury criteria would increase, or at a minimum, not significantly change the needed mercury load reductions as stated in the TMDL. This is partially due to the fact that the TMDL protects to the 0.4 mg/kg fish tissue concentration, rather than 0.23, as explained earlier in this response. Also, EPA estimates that, because of a conservative assumption made, this TMDL will be approximately the same as a TMDL based on application of the final Human Health Methodology and the new methylmercury criterion. The conservative assumption within the TMDL leading to this conclusion is related to the selection of an appropriate bioaccumulation factor (BAF) for calculating the water quality target concentration. EPA assumed in the TMDL that, of the 17.5 gms/day of fish that is consumed, all of it is large mouth bass, a trophic level 4 fish which presumably bioaccumulates more mercury into its tissue than lower trophic level fish, and therefore, has a high bioaccumulation factor (BAF). A high bioaccumulation factor will drive the concentration in EPA's interpretation of the water quality standard to a lower concentration, and therefore increase the level of mercury reductions deemed necessary to achieve standards. EPA's Human Health Methodology assumes that consumers will eat a variety of fish, representing various trophic levels, which are likely to have a lower BAF. Therefore, when applying this lower "weighted" BAF to the calculation of a water quality target, the target concentration of mercury in water will be higher than a target derived from consumption of trophic level 4 fish only. (A higher quantification of the narrative water quality standard results in a smaller amount of needed mercury reductions.) By using this conservative assumption in the TMDL, the resulting water quality standard appears to be as protective as the numeric value EPA would have derived using 0.3 mg/kg and using the assumptions as recommended in EPA's human health methodology and methylmercury criteria document (i.e., using a "weighted BAF", the general population consumption rate of 17.5 gms/day, and Rfd of .0001 mg/kg/day and an RSC of 0.000027 mg/kg/day. Therefore, we believe the commenter is in error in stating that the needed mercury reductions would be less if the new federal criterion were used as the basis for the TMDL, and as a result, we disagree that the new methylmercury criterion guidance supports the commenter's view that EPA should not require loading reductions from point sources in this TMDL.

B.17. Comment: One commenter stated that **current levels of mercury in fish from the Savannah River do not constitute a significant risk to human consumers** if the analysis considers the creel-weighted average concentrations of fish harvested from the Savannah River.

FEBRUARY 28, 2001

Response: EPA disagrees with the comment. The creel survey referred to by the commenter (Hornsby and Schmitt, 1985) does not specify the final disposition of fish within the creel. In other words, the creel survey did not determine which of the fish in the creel were actually consumed and by what number of people. The commenter's assumption that the percentages of fish that are caught are equivalent to the amount consumed is an inaccurate extrapolation of the data. The same study found the greatest catch effort amongst anglers was for largemouth bass. Given that largemouth bass is a targeted species and that this species has been shown to have fish tissue concentrations above the advisory level, there is a public health concern with respect to consumption of this species. However, EPA acknowledges that data from appropriate site-specific creel surveys which determine the species of fish being consumed would be useful information, and this information, if available at the time, will be used for revising the TMDL in the future.

B.18. Comment: Many commenters expressed **concerns with the approach taken in the TMDL in determining the most appropriate Bioaccumulation Factor (BAF).**

Response: The human health methodology requires the determination of a bioaccumulation factor for use in the equation to determine applicable water quality standard for this TMDL. The Middle/Lower Savannah River Basin was placed on the State's 303(d) List for fish consumption guidelines (mercury) for large mouth bass. EPA developed this TMDL prior to publication of the Mercury Criterion document. In future TMDL development, EPA will employ the new methodology which suggests use of weighted BAF calculations.

B.19. Comment: One commenter stated that **EPA's use of a bioaccumulation factor (BAF) to quantify the magnitude of bioaccumulation in a waterbody is not valid**, and this deficiency further undermines the assumption of a strong linkage between mercury levels in water and levels in fish tissue. Another commenter stated that **EPA's use of a single BAF** for all listed segments and for all fish populations leads to bias when estimating the appropriate water quality target. By not using segment-specific BAFs, the TMDL has an added margin of safety through use of the highest predicted mercury water column concentrations.

Response: It is not expected that the BAF would vary significantly throughout the Middle/Lower Savannah River. With the collection of additional information and data in future phases of the TMDL, enough information might then exist to develop segment-specific BAFs for the Middle/Lower Savannah River if indeed segment-specific BAFs are warranted.

B.20. Comment: **EPA should use a more representative cross section of fish** actually being consumed to calculate the TMDL.

Response: EPA targeted the collection of large mouth bass in the Savannah River Basin because

FEBRUARY 28, 2001

the fish consumption guideline issued by the Georgia Department of Natural Resources for these segments of the Savannah River were for large mouth bass. Furthermore, the use of an upper trophic level fish in determining the applicable water quality standard for this TMDL allows for the development of a TMDL that is protective of all trophic level fish.

B.21. Comment: EPA's guidance calls for a **weighted bioaccumulation factor**. This should be used in conjunction with an accurate fish consumption rate.

Response: The TMDL is intended to determine the applicable water quality standard and associated mercury loading reductions to protect the consumption of fish by the general population. If it was EPA's intent to develop a risk-based approach for subsistence fisherman on the Middle/Lower Savannah River then a weighted BAF may be more appropriate to use

.B.22. Comment: The **use of the generalized BAF may not accurately reflect the relationship between mercury in the water and mercury in fish tissue** because it is based on short-term measurements of water and fish concentrations.

Response: The BAF determined for use in the Savannah River was not based on a generalized model, but is based on field data collected during the summer of 2000. EPA agrees that the assumptions used in the Mercury Report to Congress does not take into account site-specific information and relies on simplified relations to parameterize mercury. It is because of the simplifications made in the approaches taken in the Report to Congress that EPA Region 4 conducted a field study to allow a better representation and parameterization of mercury in the TMDL.

B.23. Comment: Citgo has estimated a weighted **BAF of 1,650,00 L/kg which equates to a WQT of 6.9 ng/l** using EPD data and Schmitt/Hornsby harvest weights.

Response: Using composited fish tissue data and multiple fish species taken from the above-referenced sources do lead to the development of a lower BAF than the one used in the TMDL. Because the fish consumption guideline issued by the State was for largemouth bass for the Middle/Lower Savannah River, EPA developed a site-specific BAF to determine the appropriate water quality standard to be protective of accumulation of mercury in largemouth bass fish tissue.

B.24. Comment: There is no justification for EPA designating a **trophic level 4 fish of 315 mm length** as representative of the size and age fish that is most likely consumed.

Response: EPA agrees with the commenter, and the TMDL has been revised to reflect that a fish

FEBRUARY 28, 2001

of 315 mm in length represents the central tendency of the BAFs that were measured in the Savannah River (not the size and age of the fish that is most likely consumed). This is also the minimum length requirement for fishermen to keep.

B.25. Comment: Calculating the **BAF from water column data determined using unfiltered water** samples represents an egregious contravention of normal and accepted scientific procedures.

Response: The BAFs were calculated using data from unfiltered samples of water instead of filtered. EPA made a decision not to filter the field samples because of the limited amount of time available to EPA for the field study. (The time available for the field study was limited because of a court-ordered due date to finalize the TMDL. Filtering the samples in the field would have significantly increased the time involved for the field study.) Using the water column concentration data from a filtered water sample would yield a lower MeHg concentration in the water column and raise the associated BAF value. For example, filtered and unfiltered samples were collected at the Tide Gate station on the Savannah River. The resulting BAFs calculated from these samples show the BAF for the unfiltered sample to be 4,319,872, and the filtered sample BAF to be 13,550,000. Therefore, for this example, the filtered sample yields a BAF over three times higher than the unfiltered sample.

B.26. Comment: One commenter stated that EPA wrongly assumes that there is a **relationship between fish tissue concentrations and concentration of mercury in water column**; current studies indicate that mercury sediment concentrations and suspended particulate mercury concentrations are better predictors of fish tissue concentrations. Other commenters said there is no scientific basis for the regulation of mercury concentrations in fish based on total mercury in water column, or there is no relationship between total mercury in water column, methyl mercury in the water column and mercury in fish. Concern was also expressed that EPA has no certainty that any mercury discharged into the Savannah River will ultimately be converted into methyl mercury. No direct correlation exists between inorganic mercury concentration in the Savannah River and methyl mercury levels in the few fish samples.

Response: While these statements and accompanying material point out very real uncertainties in mercury fate analysis, they overstate the case and do not provide a workable alternative in relating mercury loadings to mercury levels in fish. The commenters analyze the data from the single Savannah River sampling survey, and find no spatial correlation between total mercury and fish mercury concentrations, between total mercury and methyl mercury concentrations, and between methyl mercury and fish mercury concentrations. The TMDL analysis, however, is not based on spatial correlations, but rather on an underlying mass balance along with a set of transport and transformation processes.

This representation of mercury fate establishes a spatially varying relationship between point and atmospheric loadings, total mercury in soil, total mercury in water and sediment, methyl mercury

FEBRUARY 28, 2001

in water and sediment, and mercury in fish tissue. This analysis assumes that reductions in loadings will lead to proportional mercury loading reductions in all media over time. While the spatial representations and time trends predicted by the model are uncertain, the expected reduction of mercury concentrations in soil, water, sediment, and fish due to reduced loadings is sound. It should be obvious that present concentrations in fish have resulted from loadings averaged over an appropriate time (as affected by transport, transformation, and bioaccumulation processes). Further, if all loadings could be completely eliminated, the mercury concentrations in all media and fish would eventually reach zero. We assume that methylation/demethylation rates and food web structure will be unaffected by future mercury load reductions. Therefore, predicted mercury concentrations in all media at a location (given sufficient time to re-equilibrate) will be related to load reductions in a roughly linear manner.

Thus we can agree with the statement that concentrations in fish would appear to be much more dependent on methylation rates and the structure of the food web than on total mercury concentrations in the water column, especially when comparing one location to another. We point out, however, that the methylation process operates on divalent mercury in the water and sediment, and that divalent mercury originates in simulated loadings to the watershed and water body. While we chose not to tune the model spatially in this first application, we could use the present framework along with spatially-variable parameters (i.e., methylation and demethylation rate constants in tributaries, water, and sediment) to better capture spatial trends in methyl mercury.

B.27. Comment: The assumption is made in the TMDL that all of the **bioaccumulation is due to progressive bioaccumulation of mercury up the food chain**. Is it possible that mercury might be accumulated in fish via adsorption in the gills.

Response: The BAF includes all exposure pathways of mercury to the fish. This includes the uptake of mercury in food and passed across the gill membrane.

B.28. Comment: **Lack of information on field-derived BAF values** for largemouth bass over time invalidates the application of a BAF because EPA cannot test its assumption that BAF values do not change over time.

Response: In subsequent phases of the TMDL, EPA will be able to determine whether the BAF calculated in the Phase I TMDL changes over time or does not represent the BAF as an annual average. At this time, however, there exists no other site-specific data collected at a different period of time to do this analysis.

B.29. Comment: The degree to which **mercury is transformed into methylmercury** and transferred up the food chain through bioaccumulation depends on many site-specific environmental factors, such as the concentrations of sulfate, pH, organic content, and food chain complexity.

FEBRUARY 28, 2001

Response: EPA agrees that there are many factors that influence the transformation of mercury into its different forms. Currently, however, there is not a consensus among scientists on how these processes transform and transfer mercury through the food chain. Additionally, data does not exist to fully parameterize these details in the transformation processes. To the extent possible, EPA relied on site-specific data for this TMDL.

B.30. Comment: Many commenters expressed concerns with the **approach taken in the TMDL in determining the most appropriate Bioaccumulation Factor (BAF).**

Response: The human health methodology requires the determination of a bioaccumulation factor for use in the equation to determine applicable water quality standard for this TMDL. The Middle/Lower Savannah River Basin was placed on the State's 303(d) List for fish consumption guidelines (mercury) for large mouth bass. EPA developed this TMDL prior to publication of the Mercury Criterion document. In future TMDL development, EPA will employ the new methodology which suggests use of weighted BAF calculations.

B.31. Comment: One commenter stated that EPA's use of a **bioaccumulation factor (BAF) to quantify the magnitude of bioaccumulation in a waterbody is not valid**, and this deficiency further undermines the assumption of a strong linkage between mercury levels in water and levels in fish tissue. Another commenter stated that EPA's use of a single BAF for all listed segments and for all fish populations leads to bias when estimating the appropriate water quality target. By not using segment-specific BAFs, the TMDL has an added margin of safety through use of the highest predicted mercury water column concentrations.

Response: It is not expected that the BAF would vary significantly throughout the Middle/Lower Savannah River. With the collection of additional information and data in future phases of the TMDL, enough information might then exist to develop segment-specific BAFs for the Middle/Lower Savannah River if indeed segment-specific BAFs are warranted.

B.32. Comment: **Salinity justifies a different (higher) WQT.**

Response: The TMDL was developed to protect the largemouth bass that predominantly resides in a freshwater system. No consideration was, therefore, given to the effects of salinity/estuarine conditions on bioaccumulation and cycling of mercury.

B.33. Comment: There is no record information for **estuarine waters, which typically have lower methylation rates and bioaccumulation than fresh water systems**. It is unclear where EPA draws the line in delineating freshwater from estuarine and marine water for this TMDL.

FEBRUARY 28, 2001

Response: The lowest segment of the Savannah River in the water quality model is at the upper most portion of the estuary. Freshwater species of fishes were collected at this point to be used in the data analysis. Since methylation rates are typically lower in estuarine systems, no indigenous fish of the estuarine waters were used in the calculations.

B.34. Comment: There is **inadequate data to calculate the WQT (methylation rate)**.

Response: SRS mentions that their data show MeHg fractions considerably lower than 0.0353, except during the one-time sampling event. While EPA agrees with the implication that the MeHg fractions used in the TMDL could be biased (i.e., too high) due to this one sampling event, it should be pointed out that the same dataset could bias the BAF values (i.e., too low) by the same factor. The net result would be about the same TMDL for total mercury. Additionally, changing the MeHg fraction from 0.0353 to 0.0300 is not a 5/1000 difference as indicated by SRS, but rather a 15% difference.

B.35. Comment: In the 2001 methylmercury 304(a) criteria guidance, **EPA rejected the use of inorganic, or total, mercury in the water column**. However, this TMDL relies upon reductions in the load of inorganic mercury in the water column.

Response: EPA disagrees that total mercury is not suitable for TMDL calculations. Because the sources of mercury come from various sources in different forms, the appropriate target would be total mercury. Furthermore, the TMDL does not rely on reductions in the inorganic mercury load to the water column but determines this reduction based upon how mercury cycles and breaks out to the different forms within the Savannah River. EPA recognizes the complexities in quantifying mercury loads from air deposition and in calculating the fate and transformation of mercury through the food chain. EPA has funded two pilot studies on how a State would proceed with a TMDL for mercury where a significant source of the load was by air deposition. The Florida pilot study found that the relationship between air sources and fish tissue could be quantified and current environmental conditions could be replicated. (The Wisconsin study has yet to produce results.) EPA believes this pilot shows that current modeling technology is suitable to support TMDL development for mercury, and that uncertainties regarding the relationship between allocations and the water quality standard would be addressed by the margin of safety, the monitoring plan, or revisions to the TMDL at a later date.

EPA recognizes there are questions concerning the reduction of mercury deposition and the time for water bodies and fish to recover. This lag effect has to do not only with the rate of mercury deposition, but also with the excessive environmental burden of mercury already present in the aquatic system. Over time, with reduced loadings, much of the mercury in the aquatic environment may be volatilized from the system or be sequestered by deep burial.

FEBRUARY 28, 2001

The commenter sites the variability in methylmercury concentrations that are due to differences in methylation rates and proximity to sources of atmospheric emission and then attempts to contrast the variability in these data with the “relatively uniform maximum concentrations of methylmercury” in fish. Obviously, the appropriate comparison that needs to be made is with the full range of variability in fish Hg concentrations, not some upper percentile. There may be a large degree of scientific uncertainty regarding the rates at which methylation reactions take place, but there is general scientific agreement that more mercury in the environment results in more mercury in fish.

B.36. Comment: EPA provides **no support for its assumption that fish migrate throughout the watershed.**

Response: Typically largemouth bass migrate within a 15 mile radius from the point at which they are found.

B.37. Comment: **EPA is wrong in assuming that the percent difference between the “target” and “predicted” water quality concentrations can be translated into the percent reduction in atmospheric loading.** Methyl and total mercury are not in equilibrium in all media.

Response: EPA agrees that methyl and total mercury are not in equilibrium in all media. The WASP model used in the TMDL calculates exchange between the water column and upper sediment layer using deposition and resuspension rates rather than imposing an equilibrium relationship. Further, the WASP model calculates the relative proportion of HgII and MeHg using methylation and demethylation rate constants rather than an imposed equilibrium relationship. Indeed, calibration to drought conditions was accomplished by running the model to steady-state using average loadings and flow, then imposing dry-weather deposition over a period of months. During that period, the sediment acted as an internal source of mercury to the water column.

Mercury concentrations in the upper sediment layers do, indeed, build up over many years under average loading and flow conditions. We could not simulate the precise time history of this buildup or any recent decline, however, because we lacked mercury deposition data over the past 50 years. Furthermore, lack of soil and water data over time would make predictions of the time trends quite uncertain. Mercury loadings to the river are influenced significantly by soil concentrations, which would decline slowly following declines in atmospheric deposition rates. Model simulations indicate that sediment mercury concentrations respond to new loadings over years, not decades, because the upper sediment layer in rivers exchanges with the water column more actively than in lakes and wetlands.

B.38. Comment: **A single methylation rate is not appropriate.**

Response: The water quality model does not utilize a single methylation rate for the entire river. The model calculates a different methylation rate based on light-driven demethylation in the water

FEBRUARY 28, 2001

column (surface rate constant of 0.1 per day), and microbially driven demethylation in the sediments (rate constant of 0.0001 per day in Table 9).

B.39. Comment: Florida studies show **difference in methylation rates between old sources and recent deposition sources**. There is no basis for concluding that a milligram of reduction of atmospheric mercury has the same potential to reduce methylmercury in fish as a milligram reduction in some other loading.

Response: EPA does not try to draw a relationship between load and the concentration in fish. EPA does establish a relationship between load and water column concentrations of mercury.

B.40. Comment: **Ionic mercury has been ignored.**

Response: EPA disagrees; the water quality model considers Hg, Hg(II) and MeHg.

B.41. Comment: Use of **average annual flow (instead of minimum daily average flow) is not explained**. (Including flood flows might skew results).

Response: EPA guidance specifies that to determine the load for toxic substances that accumulate in fish tissue as a chronic condition the annual average flow should be used in the calculation. Also, see Section 8 in the TMDL. The discussion of critical conditions explains why average annual flow is used. The use of the annual average flow accounts for the perturbations of high and low flows. The mercury that is accumulated in the fish tissue does not occur over short duration events, but over a lifetime of exposure.

B.42. Comment: **Data was collected during a drought** and thus does not reflect circumstances when mercury loadings would be highest.

Response: The purpose of the sampling was not to determine the actual loadings to the Savannah River, but to determine the form and concentrations of the various forms of mercury. Ideally, it would be useful to have monthly samples to determine changes in load and mercury forms throughout a year. This TMDL, however, was developed using best currently available information.

B.43. Comment: **Neither the current annual average nor the WQT has a MOS.**

Response: The annual average load calculated from the watershed is not based on 1998 hydrologic conditions. The annual average load was determined by averaging a 30 year meteorological condition for the Savannah Basin.

B.44. Comment: **The body weight value should be that of a child, not an adult.**

Response: EPA's human health methodology that was used in the TMDL specifies a 70 kg

FEBRUARY 28, 2001

adult.

B.45. Comment: **The TMDL should use a BAF factor of 10 million.**

Response: EPA agrees that a 10 million BAF is within the published range for mercury in largemouth bass. However, EPA collected site-specific data to determine the BAF for the Savannah River that yielded a central tendency BAF of 4,000,000.

B.46. Comment: **Use of the median percent of methylmercury in the mercury load instead of the mean should be considered.**

Response: EPA agrees that the use of the median value for percent mercury would have yielded higher BAFs. EPA used the mean to be consistent with the approaches used in the developing all of the other numeric calculations used in determining the applicable water quality standard.

B.47. Comment: **EPA's methylmercury values are on average 30% lower than SRS' analysis**
- this would result in overestimations of BAFs and WQTs that are 30% too low.

Response: There were slight differences in the methyl mercury concentrations measured between EPA and SRS. EPA believes the comparison of the split samples was quite good. EPA should point out that more than the 3 stations in which EPA split with SRS were used in the development of this TMDL. SRS mentions that their data show MeHg fractions considerably lower than 0.0353, except during the one-time sampling event. While we agree with the implication that our MeHg fractions could be biased too high due to this one sampling event, we should point out that the same dataset would bias the BAF values too low by the same factor. The net result would be about the same TMDL for total mercury. Changing the fraction from 0.0353 to 0.0300 is not a 5/1000 difference as indicated by SRS, but rather a 15% difference.

B.48. Comment: **EPA should not base the load reduction on any one segment**, but on the difference between the average concentration in the river and the WQT (e.g., the geometric mean of the data is 2.41 ng/l; the WQT is 2.83 - therefore no reductions are needed).

Response: Through this TMDL, it is EPA's intent to determine the applicable water quality standard and associated load reductions to reach fish tissue residue values for the protection of human health. EPA selected the highest predicted water column concentration of mercury in the entire stretch of river to determine the load reduction needed to achieve Georgia's water quality standard. This approach conservatively assumes that fish are exposed to the highest water column concentration throughout the river and accounts for uncertainties associated with identifying the precise locations where the fish take in mercury.

FEBRUARY 28, 2001

C. Comments related to the wasteload allocation contained in the Savannah River mercury TMDL

C.1. Comment: Commenters have questioned EPA's **basis and authority for establishing wasteload allocations equivalent to criteria end-of-pipe** or, alternatively, equivalent to reductions achieved through implementation of pollutant minimization programs, at the permitting authority's option.

Response: The Savannah River TMDL assigns a cumulative wasteload allocation (WLA) of 0.3 kilograms per year to 29 identified NPDES point sources. The TMDL also assigns individual WLAs to each of the NPDES point sources identified in the TMDL. EPA has the legal authority to assign allocations in a reasonable manner, so long as the sum of the allocations is equal to or less than the loading capacity of the receiving water (and allows for a margin of safety). In addition, with respect to nonpoint sources, EPA's regulations provide that load allocations "are best estimates of the loading, which may range from reasonably accurate estimates to gross allotments, depending on the availability of data and appropriate techniques for predicting the loading." 40 C.F.R. § 130.2(g). The TMDL assigns individual wasteload allocations to all point sources for which the EPA and DEQ have sufficient information in order to develop an equitable allocation scheme. The individual WLAs are expressed in two forms: numeric and narrative. For each point source, the permitting authority may choose the type of WLA upon which its water quality-based permit limits will be based. EPA has the legal authority to offer this choice because implementation of either type of WLA, in the aggregate, will result in attainment of the cumulative WLA of 0.3 kg/year. The reasons for EPA's conclusion are set forth below.

The WLA expressed in numeric form: The WLA expressed in numeric form, like the ensuing water quality-based effluent limit, would be derived from the water quality target for the TMDL (2.8 ng/l), which in turn reflects EPA's interpretation of Georgia's water quality standards. (EPA frequently refers to such water quality-based effluent limitations as "criteria end-of-pipe limits.") The numeric WLA represents the loadings of mercury that EPA has determined can be discharged by point sources to the Savannah River without impairing the water quality standards. By practice, EPA generally does not consider discharges at levels at or below criteria end-of-pipe to cause or contribute to an exceedance of water quality standards. EPA recognizes that mercury is a persistent, bioaccumulative pollutant and that mass loadings can sometimes be a cause for concern, irrespective of the concentrations at which they are

FEBRUARY 28, 2001

discharged. However, EPA believes that, in this circumstance, the Savannah River can assimilate mass loadings of mercury associated with criteria end-of-pipe limits without exceeding applicable water quality standards. This is because (1) the water quality target for mercury is specifically calculated to address the effects of bioaccumulation of mercury, i.e., it is stringent enough to achieve Georgia's water quality standards despite mercury's bioaccumulative impacts; and (2) EPA has reasonable assurance that reductions from other (in this case, air) sources will create sufficient loading capacity to allow mercury to be discharged in very small amounts from the identified NPDES point sources at levels at or below the cumulative wasteload allocation.³ Through implementation of the TMDL, EPA expects that, over time, concentrations of mercury in the Savannah River should be at or below levels necessary to meet Georgia's water quality standards even with the ongoing addition of mass loadings of mercury associated with criteria end-of-pipe limits. If this proves not to be the case, and the mass loadings of mercury accumulate in fish tissue at levels causing an exceedance of water quality standards, the TMDL, including its WLAs, may need to be revised. In sum, EPA believes that WLAs set equivalent to the applicable water quality standards (interpreted to be 2.8 ng/l), when considered together with the loading reductions EPA anticipates from air sources, will lead to the attainment of the Savannah River's water quality standards for mercury, as required by section 303(d).⁴

EPA has received comments objecting to this wasteload allocation on that ground that compliance with criteria end-of-pipe limits based upon it would impose enormous additional costs on the point source dischargers for negligible environmental benefit. In response, EPA notes the following. First, EPA's information shows that many mercury dischargers can achieve significant mercury reductions through pollution prevention approaches – thus obviating the need for end-of-pipe treatment, which EPA recognizes can be extremely costly. See, e.g., Overview of Pollution Prevention Approaches at POTWs (EPA 1999). Second, facilities that expect to incur substantial additional costs are free to request permit limitations based upon the alternative wasteload allocation offered in this TMDL; under that approach (discussed below), dischargers would be required in their NPDES permits, as applicable, either to reduce their mercury loadings to the maximum extent feasible through cost-effective mercury minimization measures or to characterize the mercury loadings in their effluent and to implement appropriate

³ EPA's conclusion might be different if the cumulative point source loadings were more significant or if EPA determined that it did not have the reasonable assurance that the necessary load allocations would be attained.

⁴ For these reasons, EPA determined it was not necessary to assign point sources a wasteload allocation of zero.

FEBRUARY 28, 2001

cost-effective mercury minimization measures identified through mercury minimization planning under certain circumstances. Nothing in this TMDL assumes that point sources would need to incur the costs described by the commenter. Third, a TMDL presents an opportunity to allocate loading reductions in an equitable and cost-effective way. Therefore, if EPA had reasonable assurance that all of the necessary loading reductions could be achieved through control of air sources (while allowing for a reasonable margin of safety), EPA could conceivably establish WLAs for the point sources that allow dischargers to maintain their existing effluent quality, i.e., assume no point source reductions at all. However, as noted throughout this record, EPA determined that it did not have such assurance. Therefore, EPA determined that reductions from point sources were necessary because wasteload allocations can encompass only the remaining available load (allowing for a margin of safety). Fourth, EPA disagrees that the environmental benefit of reducing mercury loadings, even in small amounts, would be negligible. As noted elsewhere in this record, mercury is a bioaccumulative, persistent pollutant that appears on EPA's list of priority toxic pollutants. Therefore, EPA believes that any removal of mercury from the environment is beneficial.

The WLA expressed in narrative form: EPA has also determined that the TMDL will lead to attainment of water quality standards if the permitting authority chooses WLAs expressed in a narrative form. While as a matter of policy EPA recommends numeric effluent limitations, neither EPA's regulations nor the CWA precludes EPA or states from expressing WLAs (or water quality-based effluent limitations) in non-numeric form with appropriate justification. The CWA defines "effluent limitation" broadly, and EPA's regulations reflect this as well. Each provides that an effluent limitation is "any restriction" imposed by the permitting authority on quantities, discharge rates and concentrations of a pollutant discharged into a water of the United States. CWA § 502(11) (emphasis supplied); 40 C.F.R. § 122.2 (emphasis supplied). Neither definition requires an effluent limitation to be expressed as a numeric limit. The D.C. Circuit observed, "Section 502(11) defines 'effluent limitation' as 'any restriction' on the amounts of pollutants, not just a numerical restriction." NRDC v. EPA, 673 F.2d 400, 403 (D.C. Cir.) (emphasis in original), cert. denied sub nom. Chemical Mfrs. Ass'n v. EPA, 459 U.S. 879 (1982). In short, the definition of "effluent limitation" is not limited to a single type of restriction, but rather contemplates a range of restrictions that may be used as appropriate. For example, EPA's regulations at 40 C.F.R. § 122.44(k) authorize effluent limitations in the form of best management practices, e.g., when it is infeasible to calculate numeric limitations or when the practices are reasonably necessary to carry out the purposes of the Act. See 40 C.F.R. §

FEBRUARY 28, 2001

122.44(k)(2) & (3).⁵

In this TMDL, the narrative version of the WLA is expressed essentially as follows: the quantity of mercury loadings that would be present in each point source's effluent after the point source quantifies the mercury in its effluent and implements measures, if appropriate, to minimize the identified loadings. Under the narrative WLA, EPA expects the permitting authority to establish NPDES permit limitations (in the form of narrative requirements) and conditions that would require the discharger either to develop and implement mercury minimization measures (in the case of the one point source that currently has water quality-based effluent limitations for mercury) or to undertake mercury characterization activities and, if appropriate, develop and implement mercury minimization measures (in the case of the other point sources identified in the TMDL). In addition, the TMDL expects, in the case of the one NPDES point source discharger that currently has a water quality-based effluent limitation for mercury, that the permitting authority will impose a numeric effluent limitation for mercury following completion of the mercury minimization plan. EPA expects that limitations to reflect the achievable level of mercury in the discharger's effluent upon implementation of appropriate, cost-effective minimization measures. EPA further expects that it would be no less stringent than currently effective water quality-based effluent limitations. EPA believes that the permitting authority is in the best position to calculate the numeric limitations that reflect implementation of minimization measures.⁶

EPA believes that mercury reductions achieved through implementation of the narrative WLAs, in the aggregate, will result in loadings equal to or less than the cumulative WLA of 0.3 kg/year.

⁵ While these WLAs are not, in themselves, enforceable water quality-based effluent limitations, EPA believes that an analogy to such limits for this purpose is appropriate because of their close relationship. See 40 C.F.R. § 122.44(d)(1)(vii)(B) (requiring the permitting authority to ensure that water quality-based effluent limitations in NPDES permits are consistent with the assumptions and requirements of WLAs established in a TMDL).

⁶ EPA disagrees with comments that characterize Option 2 as authorizing dischargers to continue discharging at their current level. Rather, EPA expects that dischargers that receive effluent limitations based on Option 2 will reduce their mercury discharges to the maximum extent feasible, using appropriate, cost-effective pollution prevention measures. While it is conceivable that a few dischargers will be unable to identify any cost-effective measures to minimize their mercury discharges, EPA believes this is highly unlikely. See, e.g., Overview of Pollution Prevention Approaches at POTWs (EPA 1999).

FEBRUARY 28, 2001

EPA believes this reduction can be achieved through reasonable mercury minimization programs, where necessary.⁷ EPA bases this belief on its study of pollutant minimization programs and their success in reducing loadings of mercury to the environment. (See EPA, 1997, Mercury Report to Congress and EPA, 1999, Pollution Prevention at POTWs Reference List.) POTWs and industrial dischargers have implemented source controls, product substitution, process modification, and public education programs with great success. For example, POTWs can educate the public to prevent pollution by avoiding household products that contain high levels of mercury or substituting those products for ones that are mercury-free or more environmentally friendly. The most cost-effective approach for POTWs to substantially reduce mercury discharges appears to be pollution prevention and waste minimization programs that focus on high concentration, high volume discharges to the collection system, with considerable effort also directed at high concentration, low volume discharges such as medical and dental facilities. Using pollutant minimization/pollution prevention programs also will reduce mercury loadings from air sources. Mercury controlled at the POTW through end-of-pipe treatment is likely to reenter the environment through pathways such as air deposition and runoff associated with from land application practices (because mercury removed from effluent invariably is transferred to POTW sludges and is either incinerated or applied to land). EPA believes that the solution to controlling mercury releases to the environment is not to change the media release from water to air or land, but to either prevent mercury from entering the wastewater collection system at the source through product substitution, waste minimization or process modification, or by removing and recycling mercury at the source (i.e., source controls) using state-of-the-art technology. Where these approaches have been implemented, substantial reductions in mercury concentrations in POTW influents, sludges, and effluents have been achieved. For a discussion of this, see, for example, Overview of Pollution Prevention Approaches at POTWs (EPA 1999).

Some commenters have argued that there is no assimilative capacity available in the Savannah River to authorize WLA option 2, which could result in discharges at levels above criteria end-of-pipe. EPA disagrees with this comment. In this TMDL, EPA has reasonable assurance that

⁷ EPA notes that not all point sources identified in the TMDL may actually need to implement mercury minimization measures. Under Option 2, EPA expects that the permitting authority would simply require many of these point sources to quantify the amount of mercury present in the discharge (if any) using the new analytical method for mercury (Method 1631). If the monitoring data shows that mercury is present in the final effluent at levels above 2.8 ng/l, EPA would then expect the permit to require the point source to develop a mercury minimization plan and to implement cost-effective and appropriate minimization measures.

FEBRUARY 28, 2001

air sources will reduce their loadings sufficiently to allow EPA to assign a cumulative wasteload allocation of 0.3 kg/year to all NPDES point sources. Option 2 presents an alternative expression of that cumulative wasteload allocation. As discussed above, EPA expects that mass loadings of mercury from point sources will be equal to or less than the allowable load following implementation of cost-effective mercury minimization measures, even though, in terms of concentration, some discharges might actually exceed criteria end-of-pipe levels.

EPA received comments questioning EPA's authority to impose permit conditions requiring development and implementation of minimization plans. In response to this comment, EPA notes first that this TMDL does not impose permit conditions or in any way require point sources to develop and implement minimization plans. Only an NPDES permit issued by EPA or an authorized state can impose such binding requirements. EPA recognizes, however, that effluent limitations in such permits must be consistent with the assumptions of this TMDL. This TMDL assumes that the cumulative wasteload allocation assigned to point sources identified in this TMDL can be achieved either through criteria end-of-pipe limitations (reflecting wasteload allocation Option A) or through waste minimization (reflecting wasteload allocation Option B). Under this TMDL, the permitting authority may choose the type of wasteload allocation upon which to base a point source's permit. If a point source doubts the legal authority supporting Option B, it is free to urge the permitting authority to base its mercury effluent limitations on Option A. In any case, EPA believes that the waste minimization approach is authorized under the Clean Water Act. It does not contemplate the establishment or enforcement of water quality-based effluent limitations within the facility; instead, it is a tool that EPA expects dischargers would use to reduce their mercury loadings at the point of discharge to the Savannah River.

EPA also received comments questioning EPA's authority to require monitoring for mercury except in connection with permit applications (40 C.F.R. § 122.21) or when the permitting authority finds it necessary to "assure compliance with permit limitations" (40 C.F.R. § 122.44(h)). EPA reiterates that this TMDL, in itself, does not impose monitoring requirements, and notes as well that the monitoring assumptions incorporated into this TMDL are associated only with Option B, which the point source is free to urge the permitting authority not to employ.⁸ In any case, EPA has the authority under CWA section 308(a) to include monitoring

⁸ Under EPA's permitting regulations, an NPDES permit must require dischargers to monitor their effluent in order to assure compliance with permit limitations. See 40 C.F.R. § 122.44(i)(1). Accordingly, if the permitting authority were to select wasteload allocation Option A, monitoring requirements would apply under authority of EPA's permitting regulations, not this TMDL.

FEBRUARY 28, 2001

assumptions as part of Option B in this TMDL. Section 308(a) authorizes EPA, among other things, to require owners or operators of point sources to establish and maintain records, make reports, install, use and maintain monitoring equipment, sample effluent, and provide such other information as the Administrator may require in order develop effluent limitations or otherwise to carry out the objectives of the Act. Among other things, EPA expects that the permitting authority will use the information from the dischargers' mercury characterization efforts to determine whether mercury is present and reliably quantified at levels justifying imposition of water quality-based effluent limitations (e.g., narrative limitations requiring development and implementation of mercury minimization measures). Accordingly, the monitoring assumptions incorporated into this TMDL are fully within EPA's authority under Section 308(a).

C.2. Comment: Several commenters stated that **EPA should not require any loading reductions from point sources** in this TMDL. Some of these commenters argued that most of the point sources are de minimus contributors to the mercury load in the River, noting that the State has assigned effluent limitations only to one point source, Olin Corporation. Other commenters stated that it is unreasonable to expect point sources to incur massive costs burdens that are unnecessary to attain water quality standards. Still other commenters argued EPA does not have authority to impose WLA's where the point source reduction alone will not result in attainment of standards.

Response: After considering the comments received, EPA has left the WLA in the final TMDL essentially as that WLA was proposed. EPA agrees that the point sources are a small component of the overall mercury loading into the Savannah River. EPA does not agree, however, that point sources should not be responsible for any of the load reductions necessary for the River to attain standards. Rather, EPA has tailored the level of load reductions assigned to point sources to reflect the remaining allowable allocation after accounting for reasonably anticipated air deposition reductions and a margin of safety.

The commenters are incorrect in stating that the lack of mercury WQBELs for most current State NPDES permitted discharges into the Savannah River is evidence that no other discharges are causing or contributing to standards violations. While only Olin Corporation has detected mercury in its effluent characterization, the absence of mercury discharge data from other facilities may simply result from the past practice of analyzing effluent using analytical methods less sensitive than current EPA Method 1631, Revision B. Under the previously standard detection method for mercury, only discharges greater than 200 ng/liter could be detected. EPA Method 1631, Revision B, has a practical range of measurement as low as 0.5 ng/l. EPA's assumption that point sources are a small component of the overall load to the

FEBRUARY 28, 2001

Savannah River is based on limited sampling of point sources, using EPA Method 1631, Revision B, conducted by the Agency in 2000. One activity contemplated by this TMDL is that all dischargers that are likely to have mercury in their effluent will be required to characterize their effluent using EPA Method 1631, Revision B, or subsequent revision. EPA expects the results of this effluent characterization to confirm its limited sampling. Facilities which determine they do not discharge mercury above 2.8 ng/l will stop there. Facilities that do discharge above 2.8 ng/l will move on to perform a waste minimization study.

EPA also disagrees that this TMDL places massive cost burdens on NPDES point sources. Point sources represent only 1% of the load reductions necessary for the River to attain standards. EPA agrees that meeting end of pipe effluent limits of 2.8 ng/l may be very costly. However, EPA expects the permitting authority will not generally choose WLA Option A for permit limitations. Rather, EPA anticipates the point sources will be able to achieve their assigned reduction, for an aggregate reduction in mercury of 0.3 kg/yr of mercury, through implementation of feasible and achievable reductions, identified by the point sources themselves, through mercury minimization plans. In addition to reducing direct discharges of mercury to the Savannah River, mercury minimization also can significantly reduce the creation of mercury and the transfer of mercury to wastewater treatment sludge.

EPA recognizes that it is possible that reductions in mercury emissions from air sources may, by themselves, result in the attainment of water quality standards for the Middle/Lower Savannah River. However, there are reasonable uncertainties associated with EPA's projection of air source reductions. See Analysis of Atmospheric Deposition of Mercury to the Savannah River Watershed. These uncertainties are prompted by a lack of knowledge concerning the relationship between currently effective Clean Air Act regulations and their effect on water quality once they are fully implemented. Id. EPA estimates that the current loadings of mercury from the surrounding watershed to the Middle/Lower Savannah River from all types of sources are 59 kg/year. EPA's analysis indicates that 26.2 kg/year of mercury needs to be reduced in order for those portions of the river to achieve the water quality target of 2.8 ng/l. Based on currently available information, EPA estimates that, by 2010, air sources can reduce their emissions of mercury sufficiently to achieve a 38% to 48% reduction in mercury deposition to the Savannah River watershed. However, EPA is unable to state with certainty what the actual air deposition reductions will be. Therefore, as required by Section 303(d)(1)(C) of the Clean Water Act, EPA accounts for these uncertainties through its margin of safety.

A significant part of the margin of safety for this TMDL is reflected in the assignment of

FEBRUARY 28, 2001

wasteload allocations to the NPDES point sources. EPA established a cumulative WLA of 0.3 kg/year for the aggregate mercury discharges from the identified NPDES point sources. EPA estimates that approximately 0.59 kg/year, or about 1%, of the total current loadings of 59 kg/year come from these point sources. Some commenters urge EPA to calculate the TMDL so that it assumes no reductions at all from point sources (i.e., expressing wasteload allocations equivalent to the point sources' current loadings). EPA disagrees with this approach for several reasons. First, while EPA is reasonably confident that the air sources can reduce their emissions sufficiently by 2010 to achieve the load allocation of 32.5 kg/year, reductions beyond that amount are not a certainty. To account for this uncertainty, EPA believes it is reasonable for point source discharges of mercury, at the very least, to be reduced to the maximum extent feasible through the implementation of mercury minimization plans and measures. (For a discussion of such pollution prevention approaches, see Overview of Pollution Prevention Approaches at POTWs (EPA 1999).) EPA further notes that these measures can conceivably yield reductions beyond those actually contemplated in the cumulative WLA, thus providing a margin of safety to offset equivalent reductions that ultimately may not be achieved from the air sources.

Second, point source discharges of bioaccumulative chemicals like mercury may have particular local significance, apart from their contribution to the cumulative load. Point source discharges by their nature may create "hot spots" where observed elevated concentrations have potential impact on aquatic life, wildlife, and human health. Consequently, comparing contributions from the air and water sources conceals the real impact of mercury from point source discharges. In many cases elevated receiving water concentrations may be dictated solely by the mercury concentration in the effluent as opposed to the mercury delivered from air deposition. This is supported by field data and will generally be true when comparing the near-field effects of effluent discharges relative to air sources. Empirical data supports EPA's research into air deposition of mercury and fish tissue modeling that showed that controls on point sources could factor site-specifically into reducing fish tissue levels of mercury.

Finally, mercury is a bioaccumulative, persistent pollutant that has been linked to serious health effects. For this TMDL, EPA believes as a matter of policy that point sources that can reduce their mercury discharges in a cost-effective way should do so. The mere fact that air sources are currently the dominant cause of impairment does not excuse point sources from implementing feasible pollution prevention measures to reduce their contribution of mercury, however small, to the environment. Indeed, sources that implement pollutant minimization plans frequently remove from the environment considerably more of the pollutant than can be accomplished through treatment. This is because less of the pollutant is generated in the first

FEBRUARY 28, 2001

place; except when the pollutant can be completely destroyed (e.g., by changing its molecular structure), treatment solutions usually result in simply transferring the pollutant from one medium to another (e.g., from water to the air or land). In short, EPA believes it is reasonable to expect NPDES permittees to implement feasible and achievable measures to reduce the amount of mercury they discharge into the environment.

C.3. Comment: One commenter stated that the TMDL does not meet the requirements of the Clean Water Act because the **wasteload allocations** (WLAs), by themselves, are not set at levels necessary to achieve standards, or at least to levels to reduce the impairment as much as possible, and reliance is made in the load allocations (LAs) without any **reasonable assurances the LAs will be achieved**.

Response: EPA has determined that “reasonable assurance” exists that the needed reductions in mercury loading to the Savannah River will be achieved through atmospheric reductions alone. See Section 10.1 of the TMDL Report. Also, See Appendix A to the TMDL Report, Analysis of Atmospheric Deposition of Mercury to the Savannah River Watershed.

C.4. Comment: Several commenters stated that **EPA is inappropriately defining the wasteload allocation as an end-of-pipe concentration**. These commenters believe the wasteload allocation is more appropriately defined by a mass loading limit. These same commenters note that with concentration-based limits, the discharger could increase the load while meeting the concentration limit. One commenter expressed concern that evaporation of cooling water may result in higher concentrations of mercury at the same mass loading.

Response: EPA agrees in part with the commenters. It is appropriate to express the wasteload allocation as a mass limit because controlling the bioaccumulation of mercury in fish tissue is ultimately a mass-driven mechanism. The permitting authority has the discretion for the method of expression of the wasteload allocation (i.e., monthly average/daily maximum or monthly/weekly average, or annual average. See comment above.) However, it also appropriate for the permit limits to be expressed as a maximum concentration to assure that, under no circumstances, a facility will contribute to the further impairment of an already-impaired water body. Because actual data on the mercury in the effluent of facilities in the middle/lower Savannah River basin is not available, EPA had no basis upon which to distribute the cumulative available mass load (wasteload allocation) to the individual point sources in the form of specific mass-based wasteload allocations. Therefore, EPA expects point sources to collect monitoring data, and develop minimization plans, where needed, before mass-load

FEBRUARY 28, 2001

allocations are assigned to individual facilities, where appropriate, in the revised 2004 TMDL. Also, for these facilities that are given criteria-end-of-pipe limits, which EPA expects to be few, a mass load limit based on the facility's permitted or design flow will be provided to assure that the facility does not increase its mass load of mercury. And, finally, there have been revisions to the TMDL to specify that a facility may discharge mercury to the middle/lower Savannah River so long as there is no increase in mass of mercury (above that in a facility's Savannah River source water) since there would be no additional adverse impact on the River from such discharge.

C.5. Comment: One commenter expressed concern that **EPA should provide additional guidance regarding the mercury characterization and minimization option.**

Response: The implementation of the mercury characterization and minimization option will be implemented through the State of Georgia's NPDES program, and therefore, the State will determine the specifics of how the option will be implemented.. However, EPA has provided some additional clarification in the final TMDL report. The TMDL report now clarifies that a minimization plan will be required only where a "net addition" of mass of mercury to the effluent is caused by the facility. A facility will not be responsible for developing a minimization plan where it is demonstrated through mercury monitoring that the facility is not adding mercury. In other words, the facility will be given an "intake credit" for the mercury that enters the plant through its source water.

While the State of Georgia will determine the necessary elements of a mercury characterization/minimization study plan, EPA would expect the plan to have elements similar to the following: (1) monitor influent/effluent with sufficient frequency to determine variability, and identify if a "net addition" of mercury mass is occurring. If the facility is shown to be causing a "net addition": (2) identify and evaluate current and potential mercury sources; (3) monitor to confirm current/potential sources; (3) identify potential methods for reducing/eliminating mercury & feasibility of implementation; (4) housekeeping practices, material substitution, process modifications, materials recovery, spill control & collection, waste recycling, pretreatment, public education, laboratory practices, disposal practices; (5) monitor to confirm reduction/elimination efforts; (6) implementation schedule for each element; and (6) reports of progress.

FEBRUARY 28, 2001

C.6. Comment: One commenter expressed concern that the **TMDL report should identify which NPDES facilities** will be allowed to choose option 2 as their wasteload allocation.

Response: EPA agrees with this comment and the final TMDL report provides a list of the NPDES permit holders that are assigned a wasteload allocation. Any of the NPDES permit holders identified in the TMDL is eligible for the end-of-pipe option, or the characterization/minimization option.

C.7. Comment: One commenter points out that **NPDES permittees should only be required to use treatment-related best available technology** to reduce mercury in effluent discharges.

Response: EPA disagrees with this comment. There are numerous alternatives to best available technology to reduce the discharge of mercury. Some of these alternatives include spill control and collection, public education, good housekeeping/laboratory/disposal practices, material substitution, and others. In some instances, facilities must go beyond technology-based minimums to meet water quality requirements as required by § 301(b)(1)(C) of the Clean Water Act (CWA).

C.8. Comment: One commenter stated that **limits need to be specified to address the degree to which an NPDES facility must go through to achieve mercury reductions in their minimization programs**.

Response: The mercury minimization planning will be implemented through the State of Georgia's NPDES Program, and as such, it will be the State's responsibility to determine the expectations for the facility's minimization plan. EPA is providing in the final TMDL general guidance that facilities are expected to plan for all feasible/achievable mercury removal options.

C.9. Comment: One commenter requested that the **TMDL specify the length of time an NPDES permittees would have to employ Method 1631** to establish their current mercury discharge amounts?

Response: The mercury monitoring and characterization will be implemented through the State of Georgia's NPDES Program, and as such, it will be the State's responsibility to determine the

FEBRUARY 28, 2001

duration of the facility's characterization program. However, EPA expects the answer to this question is highly facility-specific. EPA's general response is that facilities will monitor with a frequency sufficient to accurately characterize influent/effluent levels, assess effluent variability, and determine the effectiveness of any reduction/elimination measures that are implemented.

C.10. Comment: One commenter requested that the **TMDL specify how "feasible/achievable" mercury effluent limits will be determined**. What weight will be given to economic/technical considerations?

Response: The mercury minimization planning will be implemented through the State of Georgia's NPDES Program, and as such, discretion will be provided to the State in determining how "feasible/achievable" mercury effluent limits will be determined, and the weight to be given to economic/technical considerations. EPA expects that facilities would be given the opportunity to provide sufficient documentation to justify economic and/or technical barriers to mercury reduction implementation. EPA anticipates that "feasible/achievable" determinations will in large part be influenced by such economic/technical considerations.

C.11. Comment: One commenter stated that the **TMDL should not require states to approve/disapprove dischargers' mercury minimization plans** or measures. Instead, the dischargers should identify the mercury sources, assess the possible reduction measures, and report periodically to the State on their progress in achieving the steps in their minimization plans.

Response: The mercury minimization planning (MMP) process will be implemented through the State of Georgia's NPDES Program, and as such, it will be the State's responsibility to determine the State's role in a facility's MMP. However, EPA agrees with the comment that formal approval/disapproval by the permitting authority of a facility's minimization plan is not required, and as such, the TMDL does not specify such a formal approval process. This is consistent with EPA's Pulp and Paper cluster rules (40 C.F.R. § 430.03) where EPA requires NPDES permittees to develop and implement Best Management Practices (BMP) plans, but does not require the permitting authority to approve the plan. EPA believes that the State should review the plans or progress reports, and the State must determine the appropriate feasible/achievable mercury effluent limits.

FEBRUARY 28, 2001

C.12. Comment: Several commenters stated that **the TMDL should not result in enforceable numeric water -quality-based effluent limits (WQBEL) based on a Pollutant Minimization Plan (PMP.)**

Response: EPA disagrees with this comment. A PMP is required if the facility's effluent characterization finds that a facility has a "net addition" of mercury above the applicable water quality standard, which EPA interprets to be 2.8 ng/l. Once imposed through a facility's NPDES permit, the PMP would constitute a narrative water quality-based effluent limitation. Water quality-based effluent limitations are required by the NPDES regulations at 40 CFR §§ 122.44(d)(1)(i) and 122.44(d)(1)(vii)(A) and (B) whenever the permitting authority determines that the mercury discharges have the reasonable potential to cause or contribute to an exceedance of applicable standards. If PMP implementation reduces the "net addition" mercury effluent levels below the applicable water quality standard, an enforceable numeric WQBEL may not be needed or required because the permitting authority could determine that there is no reasonable potential. In all other cases, the narrative water quality-based effluent limitation would continue to be necessary. EPA believes that the permitting authority can calculate an appropriate numeric limit that reflects the levels of mercury present after implementation of the PMP. This would be consistent with 40 C.F.R. § 122.44(k), which authorizes narrative limitations, e.g., best management practices, in lieu of numeric limitations only when it is infeasible to calculate a numeric limitation.

EPA recognizes that some facilities that have undertaken pollutant minimization do not show a directly proportionate reduction in mercury that is consistently maintained. The permitting authority has discretion to factor variability into the derivation or implementation of the feasible/achievable permit limit; however, facility will need to demonstrate the variability of the pollutant concentration through sufficient monitoring.

C.13. Comment: The TMDL should state that the **permit limits should be expressed as an annual average, rather than monthly average or daily maximum.**

Response: The implementation of the TMDL will be through the State of Georgia's NPDES program, therefore, the decision on the appropriate expression for the permit limit will be left to the State. If a facility's permits is based on Option A, an end-of-pipe concentration limit of 2.8 ng/l, Georgia will use its discretion to decide whether that permit limit should be expressed as an annual average, a monthly average/daily maximum, or a monthly/weekly average. If a facility's permit is based on Option B and a minimization plan is developed and a permit limit is

FEBRUARY 28, 2001

needed, Georgia will again use its discretion as the permitting authority to ultimately decide how any permit limits based on mercury minimization are expressed. EPA's regulations at 40 CFR § 122.45(d) allows the permitting authority to use annual average limits when the use of monthly average/daily maximum or monthly/weekly average is impracticable. 40 CFR § 122.44(d)(1)(vii)(B) also provides authority to express permit limits as annual averages, where such limits are consistent with any approved WLA.

C.14. Comment: One commenter stated that facilities which receive in the TMDL a water-quality-based effluent limit may have a **compliance schedule of generally less than 3 years** to meet these limits.

Response: EPA agrees that the permitting authority may allow a facility to have a compliance schedule for meeting a permit limit consistent with the State's NPDES and water quality standards regulations.

C.15. Comment: Because **existing point sources with mercury permit limits are such a small percentage of the available WLA**, they should be allocated more of the allowable point source loading. Permit limits could be based on EPA water quality criteria and appropriate mixing zones. Existing point sources should not be penalized for having submitted accurate NPDES permit applications, which identify them as mercury dischargers.

Response: EPA is not sure that it understands this first comment. If the comment is saying that the one facility with an existing permit limit should be allocated a greater portion of the available wasteload allocation, the commenter may not completely understand the TMDL. EPA did not have enough information to assign specific mass-based wasteload allocations to the individual point sources; instead, the TMDL expects point sources to collect monitoring data, and develop minimization plans, where needed, before specific wasteload allocations are assigned to individual facilities in the revised 2004 TMDL. The one facility with a current a permit limit for mercury will receive feasible/achievable permit limits once the mercury minimization plan has been developed. Also, mixing zones are not appropriate since this TMDL is designed to achieve the applicable water quality standard. For a response to the mixing zone comment, see other responses to comment regarding mixing zone issues. Regarding the comment about penalizing existing point source discharges, all dischargers are required to certify and submit true, complete, and accurate NPDES permit applications. Submitting false information on an application form is a violation of the CWA and would subject the applicant to various penalties.

FEBRUARY 28, 2001

EPA does recognize that EPA Method 1631 Revision B, for mercury is fairly recent and that as renewal permit applications are submitted over time, more and more applicants will be using this or a superseding method. Use of this method may show measurable levels of mercury where previous sampling using less sensitive methods did not. However, based on 40 CFR § 122.44(d)(1)(i), a permit limit is required for any parameter that is deemed to be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard. Based on 40 CFR § 122.44(d)(1)(vii)(B), permit effluent limits to protect water quality criteria must be consistent with the any approved WLA. When levels of mercury are found that exceed the applicable water quality standard, the CWA and implementing NPDES regulations require that this situation be addressed.

C.16. Comment: A wasteload allocation equivalent to criteria end-of-pipe is tantamount to a ban on **mixing zones for mercury** discharges to the portions of the Savannah River affected by the TMDL. Denying mixing zones in this instance is inconsistent with the Clean Water Act and EPA's regulations, and contravenes the States' broad discretion to implement their water quality standards.

Response: EPA agrees with the commenter's statement that a wasteload allocation equivalent to criteria end-of-pipe would preclude the permitting authority from employing a mixing zone to authorize a less stringent permit limit. EPA disagrees with the commenter, however, that EPA lacks the statutory authority to assign criteria end-of-pipe wasteload allocations to point sources as part of the Savannah River TMDL. First, EPA disagrees with the commenter's interpretation of CWA section 301(b)(1)(C) and the accompanying legislative history. The commenter argues that EPA's authorization to include NPDES limitations "necessary to meet water quality standards," CWA section 301(b)(1)(C), is confined to situations when such limitations are "'necessary' to achieve a discernible reduction in the impairment." EPA disagrees that the statute must be read so narrowly. Indeed, EPA's long-standing regulations provide that permits must contain water quality-based effluent limits whenever the permitting authority determines that pollutants are being discharged at a level that will "cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." 40 C.F.R. § 122.44(d)(1)(i) (emphasis added); see 54 Fed. Reg. 23868 (June 2, 1989). The resulting limitations, in turn, ensure that the pollutant discharges will not fulfill their potential to cause or contribute to an exceedance of standards.⁹

⁹ The commenter's statutory and legislative history arguments, at bottom, challenge EPA's regulations in Part 122 and are therefore outside the scope of this TMDL.

FEBRUARY 28, 2001

The commenter also asserts that the TMDL's criteria end-of-pipe wasteload allocations are inconsistent with EPA's regulations at 40 C.F.R. § 122.44(d)(1) and the CWA's broad grant of authority to States to implement water quality standards. The commenter correctly notes that EPA's regulations authorize the permitting authority to consider "where appropriate, the dilution of the effluent in the receiving water" when deciding whether or not a water quality-based effluent limitation is necessary (i.e., in making "reasonable potential" determinations). 40 C.F.R. § 122.44(d)(1)(ii). However, contrary to the commenter's suggestion, this regulation does not require the consideration of mixing zones in all circumstances, but rather only when appropriate. Similarly, when EPA promulgates water quality standards for a state, e.g., 40 C.F.R. § 131.36(c)(2)(i), EPA directs that the water quality criteria apply "at the appropriate location" within or outside a mixing zone, while noting also that "otherwise the criteria apply throughout the waterbody including at the end of the discharge pipe, canal or other discharge point." Both of these regulations allow for the use of mixing zones when appropriate. When levels of the pollutant for which a mixing zone is sought already exceed the applicable criterion in the receiving water, there may be no available dilution. Therefore, even though state water quality standards might generally authorize mixing zones, it would not be appropriate to exercise such authority in that situation. (Indeed, authorization to establish mixing zones does not imply a requirement to establish mixing zones, as the commenter seems to suggest.) Contrary to the commenter's assertions, this TMDL does not promulgate a rule of general applicability that would prohibit mixing zones. Rather, it applies EPA's regulation and reflects EPA's judgment that there may be no available dilution even after implementation of the TMDL, with the result that a mixing zone would not be appropriate here.¹⁰

¹⁰ It is possible that mercury loadings from the point sources identified in the TMDL ultimately might be reduced to levels below the cumulative wasteload allocation assigned to all of the sources in this TMDL. In that event, it is conceivable that loading capacity could be available to authorize limited use of mixing zones in lieu of Option A's expectation that all point source dischargers would be subject to criteria end-of-pipe limitations. At this point, however, EPA assigns any such available load to this TMDL's margin of safety as a buffer against uncertainties associated with current actual point source loadings and anticipated achievable reductions. EPA would be willing to reconsider the Option A wasteload allocation in future revisions of the TMDL, should EPA determine that additional loading capacity could be made available to the point sources. EPA notes, however, that as a matter of policy, EPA believes that mixing zones for mercury should be authorized (even if additional loading capacity exists) only in limited circumstances because of the persistent, bioaccumulative nature of the pollutant. See, e.g., 40 C.F.R. Part 132, Appendix F, Procedure 3.C (prohibiting mixing zones for mercury and other bioaccumulative chemicals of concern in the Great Lakes System, subject to water conservation and technical/economic feasibility exceptions for existing discharges).

FEBRUARY 28, 2001

Similarly inapposite is the commenter's reference to the Administrator's decision In the Matter of Star-Kist Caribe, Inc., NPDES Appeal No. 88-5 (1990). The passage indicated by this comment is quoted out of context. In context, it becomes clear that the Administrator was clarifying that only the States, and not EPA, can establish the authority to use flexible provisions such as mixing zones to implement state-adopted water quality standards. The decision clearly holds that if a State has adopted such authority, then EPA can employ mixing zones in permits that EPA issues. However, EPA cannot implement flexible provisions where the State, in its exclusive authority, has not established the authority to do so. The decision does not hold that when a State has authorized such provisions and implements them in its own permits, EPA has no authority to object to or comment adversely on whether such implementation meets the underlying permitting requirements set forth in EPA regulations.

Finally, EPA notes that a mixing zone, by definition, authorizes discharges above the applicable water quality criteria. Concentration levels close to water quality criteria correspond to the maximum loadings of the pollutant that can be introduced into receiving waters without impairing designated uses. For some pollutants, those levels can be exceeded in a limited area (a mixing zone) because the system can assimilate the additional loadings. Thus, the appropriate use of mixing zones allows for greater discharges of pollutants that have a short-term and localized impact on waterbodies, provided those discharges do not adversely affect the waterbody away from the area of immediate discharge (the mixing zone). Mercury behaves differently. The effects of mercury are not limited to the short term and can occur at considerable distance from the point of discharge. Therefore, the use of mixing zones to increase the amount of allowable discharge of mercury may not be environmentally prudent. A water quality-based effluent limitation based on criteria end-of-pipe assures that mercury will be discharged at safe levels.

The commenter also raises technical objections to the omission of a mixing zone. The commenter states that it is technically inconsistent for EPA to eliminate mixing zones predicated on 100 % of the mercury remaining in the water column while admitting in the TMDL that reduction and demethylation occur when mercury is released, and bioaccumulation occurs over a long period of time. EPA does not completely understand this commenter's issue as it relates to a mixing zone. However, if the commenter is saying that mercury will be immediately lost to the receiving waterbody when it is discharged, EPA disagrees. It is true that chemical processes, such as reduction/volatilization, occur to the mercury discharged to a receiving waterbody, and these chemical processes may cause some mercury to be lost from the system. However, this small loss of mercury is not able to be quantified, and therefore, cannot be considered when making wasteload allocations. Also, methylation of mercury changes mercury

FEBRUARY 28, 2001

from one form to another and does not remove any mercury from the system. Therefore, EPA believes that it is not being technically inconsistent in not allowing mixing zones in this TMDL.

C.17. Comment: The **wasteload allocations in the TMDL are tantamount to water quality-based effluent limitations**. EPA is precluded from establishing such wasteload allocations because Georgia, not EPA, has the exclusive authority under CWA section 402(c) to set effluent limitations and because EPA has not followed the procedures of CWA section 302, which specifies the limited circumstances under which EPA may establish effluent limitations for the protection of water quality.

Response: EPA's establishment of WLAs as part of a TMDL is both authorized and required by EPA's 1985 implementing regulations. While EPA's regulations define a WLA as "a type of water quality-based effluent limitation" (40 C.F.R. 130.2(h)), that does not mean that establishing a WLA in a TMDL is tantamount to imposing enforceable effluent limitations or conditions in an NPDES. Unlike effluent limitations in an NPDES permit, wasteload allocations are not directly enforceable against point sources. In addition, under section 303(d), EPA has the authority (and, in the case of this TMDL, the legal obligation) to establish TMDLs in certain circumstances. In contrast, under section 402, exclusive authority to issue NPDES permits transfers to states that EPA authorizes to administer the NPDES permit program.¹¹

EPA recognizes the relationship between wasteload allocations and water quality-based effluent limitations. EPA's regulations at 40 C.F.R. § 122.44(d)(1)(vii)(B) require the permitting authority (in this case, Georgia) to ensure that "[e]ffluent limits developed to protect a narrative water quality criterion . . . are consistent with the assumptions and requirements of any available wasteload allocation" developed under 40 C.F.R. § 130.7. The TMDL established today for the Savannah River is based on EPA's interpretation of Georgia's narrative water quality criterion for toxic pollutants and includes wasteload allocations applicable to **15??** individual point sources. Accordingly, when Georgia issues or renews NPDES permits to those individual point sources, Georgia must derive mercury water quality-based effluent limitations for the protection of human health that are consistent with the assumptions and requirements of the WLAs in the TMDL.

¹¹ Section 402 authorizes EPA to issue NPDES permits in authorized states under limited circumstances, but those are not relevant here.

FEBRUARY 28, 2001

The relationship between wasteload allocations and permit limits is entirely consistent with the purpose of section 303(d) and its relationship to sections 301(b)(1)(C) and 402. Section 303(d)(1) and EPA's implementing regulations require the listing of all waters for which technology-based and other controls are not stringent enough to achieve applicable water quality standards. The purpose of listing is to identify the need for TMDLs, which must be established "at a level necessary to implement the applicable water quality standards." Section 303(d)(1)(C). The TMDL in turn provides the permitting authority with information with which to impose limitations more stringent than technology-based limitations, "including those necessary to meet water quality standards." While a permitting authority is authorized to (and, when necessary, must) impose water quality-based effluent limitations in the absence of a TMDL, EPA's regulation at 40 C.F.R. § 122.44(d)(1)(vii)(B) ensures that the limits are consistent with the assumptions and requirements of the WLAs in a TMDL whenever one is available. As illustrated by the Savannah River TMDL, this type of deference is reasonable in view of the considerable amount of data and analysis underlying the TMDL, as well as the fact that a TMDL takes into account all point and nonpoint sources, not just the permittee, when assigning loading allocations. While it is true that the Savannah River TMDL reflects some policy decisions that, in the absence of a TMDL, might be left to the permitting authority, Georgia elected not to develop this TMDL and that obligation fell to EPA. Nevertheless, Georgia, not EPA, has the authority to convert these unenforceable wasteload allocations into enforceable permit limitations, and nothing in this TMDL divests Georgia of that authority.

Because EPA is not establishing this TMDL pursuant to the authorities in section 302, the commenters' arguments that EPA failed to follow the procedures in section 302 are obviously misplaced. Clearly, EPA is establishing this TMDL pursuant to the authorities in section 303(d) and not section 302. Section 302 applies to the issuance NPDES permits, not the establishment of TMDLs. Furthermore, section 302 only applies when the Administrator determines that an individual NPDES permit requires effluent limitations more stringent than required by state water quality standards, pursuant to section 301(b)(1)(C). See General Counsel Opinions from the Office of the General Counsel, January 1980 Through June 1985, at 107. In today's action, EPA is neither issuing an NPDES permit nor determining that effluent limitations more stringent than those required to meet water quality standards are required. As EPA has explained, today's TMDL implements Georgia's existing water quality standards.

C.18. **Comment: EPA lacks the legal authority to establish wasteload allocations.** First, the statute requires only total loads. Second, establishing wasteload allocations amounts to implementing EPA's new TMDL rule in violation of law.

FEBRUARY 28, 2001

Response: EPA disagrees that it lacks the authority to establish wasteload allocations as part of this TMDL. Wasteload allocations have been a required element of TMDLs since 1985. See 40 C.F.R. § 130.2(i). Any challenge to the presence of wasteload allocations within TMDLs is essentially a challenge to EPA's 1985 TMDL regulations and therefore is outside the scope of this action. EPA also notes that its regulations since 1989 have made it clear that water quality-based effluent limitations must be consistent with the assumptions of any available wasteload allocation prepared pursuant to EPA's TMDL regulations. See 40 C.F.R. § 122.44(d)(1)(vii)(B); 54 Fed. Reg. 23868, 23879 (June 2, 1989). In addition, the 1987 amendments to the Clean Water Act acknowledge the relationship between TMDLs, wasteload allocations and the ensuing effluent limitations. See CWA section 303(d)(4). Therefore, EPA has ample authority to establish wasteload allocations for point sources that discharge or are likely to discharge mercury to the Savannah River.

EPA also disagrees that, by establishing wasteload allocations in this TMDL, EPA is implementing part of a new TMDL rule in violation of Pub. L. No. 102-246, 114 Stat. 567 (2000) (the "TMDL rider"). As noted above, wasteload allocations have been a component of TMDLs and a basis for permit limits for more than a decade. This TMDL complies with and is carried out under the authority of EPA's 1985 regulations. The TMDL rider does not apply to the implementation of pre-existing rules that remain in effect after the rider becomes law.

C.19. Comment: EPA believes that some commenters may have concerns regarding EPA **providing a wasteload allocation to NPDES facilities located on tributaries** to the middle/lower Savannah River, which are not Section 303(d) listed segments.

Response: EPA has developed this TMDL for eight segments of the Savannah River. To achieve water quality standards for mercury for those eight segments, EPA determined that it needed to account for all NPDES point sources in Georgia that EPA and the State believe may be discharging mercury to those segments, even if those sources do not discharge directly to the segments. Thus, while the TMDL addresses impairment on the eight listed segments, the wasteload allocations apply to point sources in upstream watersheds that are tributary to the listed segments. The upstream tributaries are not on the Section 303(d) list because the State of Georgia, at the time of developing their latest Year 2000 Section 303(d) list, lacked data showing these waters to be impaired. (Note: Data collected by EPA during the August and September 2000 monitoring study of the Savannah River Basin collected data from many of these tributaries indicating fish tissue concentrations above the State's fish consumption guideline. This data will require that these tributaries be listed on the State's 2002 Section

FEBRUARY 28, 2001

303(d) list.)) Nevertheless, point sources on these tributaries discharge mercury to the upstream watershed which is then transported downstream to the 303(d) listed-portion of the Savannah River. For example, the Augusta, Georgia wastewater treatment plant (GA0037621) discharges mercury to Butler Creek which is not yet included on Georgia's section 303(d) list. Butler Creek flows into the Savannah River between US Highway 78/278 and McBean Creek, which is a listed segment of the Savannah River. Since the mercury from the Augusta wastewater treatment plant ultimately reaches the listed segment of the Savannah River, this point source is included in the wasteload allocations for the TMDL even though Butler Creek immediately adjacent to the outfall is not a listed waterbody.

It is neither practical nor equitable to limit TMDL allocations only to those sources that discharge directly into 303(d) listed waters. From a practical standpoint, the agency issuing the TMDL may have a wide range of information on waters and sources in a given watershed. From a facility inspection, for example, the agency collect information clearly identifying a major source of pollutants to a downstream 303(d)-listed waterbody. But the same agency may not have information for the waterbody to which the source discharges for inclusion on the 303(d) list. It would be inappropriate and contrary to the goals of the Clean Water Act to either ignore this source in a TMDL for the downstream water or delay action until samples of the waterbody adjacent to the source could be collected for 303(d) list administration.

In terms of equity, if the agency failed to consider and account for this upstream source in the TMDL allocations, its unregulated discharges could severely (and unfairly) impact allocations for downstream sources. In order to establish an equitable and effective TMDL, all known sources contributing loadings to the impaired water must be addressed in the TMDL allocations.

EPA is authorized to adopt this approach because of the requirement in section 303(d)(1)(C) that TMDLs be established at levels necessary to implement applicable water quality standards. Absent controls on upstream sources, EPA would lack the assurance that the TMDL for downstream waters would result in the attainment of water quality standards.

C.20. Comments: EPA has received a number of comments, often conflicting, regarding **EPA's allocation of part of the loading capacity to South Carolina**. Some commenters assert that EPA should assign specific wasteload allocations to sources within South Carolina, while others dispute assigning any kind of load to South Carolina (or to South Carolina sources) at all. Commenters

FEBRUARY 28, 2001

question applying the allocation to the South Carolina boundary, at the mid-point of the river, because that boundary has no relationship to fish travel or mercury transport. Commenters also challenge EPA's legal authority to apply the Georgia water quality standard (expressed in this TMDL as the water quality target) to South Carolina.

Response: The final TMDL does not assign an allocation to the State of South Carolina or to South Carolina sources. Instead, the final TMDL incorporates an assumption that concentrations of mercury in the South Carolina portion of the Savannah River will meet the applicable Georgia water quality standards at the South Carolina-Georgia border. The water quality standard that applies to this TMDL is Georgia's narrative water quality criterion for toxics, which provides that Georgia waters shall be free from toxic substances in amounts harmful to humans. EPA has interpreted that standard as 2.8 ng/l. As a technical matter, meeting Georgia's standard at the border is important because, as commenters point out, there is no hydrological difference between the South Carolina and Georgia portions of the Savannah River. Moreover, the fish travel freely across the border; they may be exposed to mercury in South Carolina, but be consumed by individuals in Georgia. Therefore, an important assumption of this TMDL is that concentrations of mercury on both sides of the border will be not exceed 2.8 ng/l.

EPA bases this on the following factors. First, as a practical matter, EPA notes that the load reductions anticipated from air sources in this TMDL apply to all air sources located both within the watershed and within a 100 km radius of the watershed, i.e., in both Georgia and South Carolina. Therefore, the TMDL already assumes substantial reductions from South Carolina air sources. By the same token, the TMDL's gross load allocation to air sources accounts for emissions that EPA expects to remain from South Carolina, as well as Georgia, air sources after application of air pollution controls. (For this Georgia TMDL, allocations to the South Carolina air sources can be considered as allocations to "background," and reflect anticipated reductions in such background loadings.)

Second, EPA assumes that mercury loadings from South Carolina will meet Georgia's water quality standards at the border because South Carolina ultimately will need to develop a TMDL for mercury in the Savannah River that meets downstream water quality standards. (As is the case for Georgia, the Savannah River appears on South Carolina's section 303(d) list for mercury based on the impairment of fish consumption uses. South Carolina may not issue an NPDES permit unless it includes conditions that ensure compliance with Georgia's water quality standards. In addition, 40 C.F.R. § 122.44(d)(1)(vii)(B) requires the permit writer to

FEBRUARY 28, 2001

ensure that water quality-based effluent limitations are consistent with the assumptions and requirements of any applicable TMDL (in this case, a TMDL established by EPA). Therefore, in order to comply with § 122.4(d), South Carolina's forthcoming mercury TMDL will need to incorporate assumptions and assign allocations that will comply with Georgia's water quality standards.

EPA also notes that 40 C.F.R. § 122.4(d) applies to South Carolina's permitting decisions even in the absence of a South Carolina TMDL. In this case, today's TMDL interprets Georgia's narrative water quality criterion for mercury to be 2.8 ng/l. The TMDL further provides that Georgia's NPDES point sources can achieve their allocation of the resulting TMDL loading capacity either by achieving criteria end-of-pipe limitations (Option A) or developing and implementing mercury characterization/minimization measures where appropriate (Option B). This TMDL expressly assumes that limitations on South Carolina point sources that reflect either approach will meet the requirements of 40 C.F.R. § 122.4(d).

This situation is similar to the one addressed by the U.S. Supreme Court in Arkansas v. Oklahoma, 503 U.S. 91 (1992). In that case, the Court held that EPA has the authority to adopt regulations (40 C.F.R. § 122.4(d)) that required all NPDES permits to include limitations and conditions to ensure compliance with downstream state water quality standards. At issue in that case was EPA's issuance of an NPDES permit to an Arkansas facility that imposed conditions derived from the downstream state's water quality standards. Noting that "the statute clearly does not limit the EPA's authority to mandate such compliance," the Court held:

"The regulations relied on by the EPA were a perfectly reasonable exercise of the Agency's statutory discretion. The application of state water quality standards in the interstate context is wholly consistent with the Act's broad purpose 'to restore and maintain the chemical, physical, and biological integrity of the Nation's waters.' 33 U.S.C. § 1251(a). Moreover, as noted above, § 301(b)(1)(C) expressly identifies the achievement of state water quality standards as one of the Act's central objectives. The Agency's regulations conditioning NPDES permits are a well-tailored means of achieving this goal. *Id.* at 105-06." When South Carolina establishes a TMDL for the Savannah River for mercury, the wasteload allocations will need to ensure compliance with Georgia's water quality standards in order that permit limits based on those wasteload allocations meet §122.4(d).¹²

¹² One commenter asserts that South Carolina has a duty, when implementing its water quality standards, only to ensure that its actions "have no discernable impact on Georgia's waters." The commenter may have based this comment on a decision by EPA in NPDES Appeal No. 88-1. In

FEBRUARY 28, 2001

Because, under 40 C.F.R. § 122.4(d), the South Carolina permitting authority must calculate NPDES limitations at levels necessary to ensure that point source discharges would not cause or contribute to an exceedance of Georgia's standards, EPA did not see the need in this case to assign specific wasteload allocations to South Carolina point sources. The effect on Georgia waters would be the same with or without such wasteload allocations in this TMDL.

C.21. Comment: **Use of average annual flow (instead of minimum daily average flow) is not explained.** (Including flood flows might skew results).

Response: EPA guidance specifies that to determine the load for toxic substances that accumulate in fish tissue as a chronic condition the annual average flow should be used in the calculation. The use of the annual average flow accounts for the perturbations of high and low flows. The mercury that is accumulated in the fish tissue does not occur over short duration events, but over a lifetime of exposure.

C.22. Comment: The TMDL is not site-specific enough. "The TMDL is given for the river as a whole and **the WLAs are lumped**. This may fail to account for "hot spots and great uncertainty." "This also does not seem to make adequate use of stream data showing higher Hg values, and perhaps greater limitations in some locations."

Response: EPA is under a court-ordered schedule for finalizing the Savannah River Mercury TMDL. Such deadlines require that EPA and affected states establish TMDLs using the best available information at the time.

EPA was under court order to finalize the Savannah River Mercury TMDL by June 7, 2000. In February 2000, EPA first proposed this TMDL, and received significant public comment regarding the lack of appropriate site-specific data in producing the proposed TMDL. As a result, EPA requested and was granted an extension by the Court to finalize the TMDL; however, the Court

that appeal, EPA's Chief Judicial Officer articulated "no detectable change" as an acceptable basis for deciding whether an upstream discharge would comply with a downstream state's antidegradation policy. EPA has not addressed, and need not address in this proceeding, whether that interpretation would satisfy the requirement of § 122.4(d) to include conditions to ensure compliance with state water quality criteria.

FEBRUARY 28, 2001

only allowed EPA an 8-month extension to February 28, 2001. Within the 8 month extension period, EPA developed a sampling plan for the 200 mile stretch of the Middle/Lower Savannah River; implemented the sampling plan by sending a team of EPA staff into the field for 3 weeks to collect the samples; analyzed samples and performed the required quality assurance review through an expedited effort that took six weeks from start to finish; modeled the transport of mercury over the watershed and in the Savannah River, and conducted 2 public meetings. The limited time available to EPA to complete this process allowed only a one-time field sampling study.

Although the one time sampling event did provide site-specific data with which to develop this TMDL, EPA agrees that one sampling event may not be adequate to fully characterize mercury in the Middle/Lower Savannah River Basin. As such, EPA is using a Phased TMDL development approach to allow for the collection of additional data in the basin to better characterize mercury, including “hot spots”, in the watershed between now and 2004 when the TMDL will be revised.

Additionally, other than data referenced in this TMDL, there exists no sediment data for the Savannah River collected in the recent past using the new analytical technique. This recent data does not indicate any “hot spots”. If there exist “hot spots” in the river, the reductions in the loads coming into the river will allow for mercury levels in these “hot spots” to be reduced.

D. Comments related to NPDES permitting issues

D.1. Comment: One commenter expressed concern that **EPA should provide additional guidance regarding the mercury characterization and minimization option.**

Response: The implementation of the mercury characterization and minimization option will be implemented through the State of Georgia’s NPDES program, and therefore, the State will determine the specifics of how the option will be implemented.. However, EPA has provided some additional clarification in the final TMDL report. The TMDL report now clarifies that a minimization plan will be required only where a “net addition” of mass of mercury to the effluent is caused by the facility. A facility will not be responsible for developing a minimization plan where it is demonstrated through mercury monitoring that the facility is not adding mercury. In other words, the facility will be given an “intake credit” for the mercury that enters the plant through its source water.

While the State of Georgia will determine the necessary elements of a mercury characterization/ minimization study plan, EPA would expect the plan to have elements similar to the following:

FEBRUARY 28, 2001

(1) monitor influent/effluent with sufficient frequency to determine variability, and identify if a “net addition” of mercury mass is occurring. If the facility is shown to be causing a “net addition”: (2) identify and evaluate current and potential mercury sources; (3) monitor to confirm current/potential sources; (3) identify potential methods for reducing/eliminating mercury & feasibility of implementation; (4) housekeeping practices, material substitution, process modifications, materials recovery, spill control & collection, waste recycling, pretreatment, public education, laboratory practices, disposal practices; (5) monitor to confirm reduction/elimination efforts; (6) implementation schedule for each element; and (6) reports of progress.

D.2. Comment: One commenter expressed concern that the **TMDL report should identify which NPDES facilities** will be allowed to choose option 2 as their wasteload allocation.

Response: EPA agrees with this comment and the final TMDL report provides a list of the NPDES permit holders that are assigned a wasteload allocation. Any of the NPDES permit holders identified in the TMDL is eligible for the end-of-pipe option, or the characterization/minimization option.

D.3. Comment: One commenter points out that **NPDES permittees should only be required to use treatment-related best available technology** to reduce mercury in effluent discharges.

Response: EPA disagrees with this comment. There are numerous alternatives to best available technology to reduce the discharge of mercury. Some of these alternatives include spill control and collection, public education, good housekeeping/laboratory/disposal practices, material substitution, and others. In some instances, facilities must go beyond technology-based minimums to meet water quality requirements as required by § 301(b)(1)(C) of the Clean Water Act (CWA).

D.4. Comment: One commenter stated that **limits need to be specified to address the degree to which an NPDES facility must go through to achieve mercury reductions in their minimization programs**.

Response: The mercury minimization planning will be implemented through the State of Georgia’s NPDES Program, and as such, it will be the State’s responsibility to determine the

FEBRUARY 28, 2001

expectations for the facility's minimization plan. EPA is providing in the final TMDL general guidance that facilities are expected to plan for all feasible/achievable mercury removal options.

D.5. Comment: One commenter requested that the **TMDL specify the length of time an NPDES permittees would have to employ Method 1631** to establish their current mercury discharge amounts?

Response: The mercury monitoring and characterization will be implemented through the State of Georgia's NPDES Program, and as such, it will be the State's responsibility to determine the duration of the facility's characterization program. However, EPA expects the answer to this question is highly facility-specific. EPA's general response is that facilities will monitor with a frequency sufficient to accurately characterize influent/effluent levels, assess effluent variability, and determine the effectiveness of any reduction/elimination measures that are implemented.

D.6. Comment: One commenter requested that the **TMDL specify how "feasible/achievable" mercury effluent limits will be determined.** What weight will be given to economic/technical considerations?

Response: The mercury minimization planning will be implemented through the State of Georgia's NPDES Program, and as such, discretion will be provided to the State in determining how "feasible/achievable" mercury effluent limits will be determined, and the weight to be given to economic/technical considerations. EPA expects that facilities would be given the opportunity to provide sufficient documentation to justify economic and/or technical barriers to mercury reduction implementation. EPA anticipates that "feasible/achievable" determinations will in large part be influenced by such economic/technical considerations.

D.7. Comment: One commenter stated that the **TMDL should not require states to approve/disapprove dischargers' mercury minimization plans** or measures. Instead, the dischargers should identify the mercury sources, assess the possible reduction measures, and report periodically to the State on their progress in achieving the steps in their minimization plans.

Response: The mercury minimization planning (MMP) process will be implemented through the State of Georgia's NPDES Program, and as such, it will be the State's responsibility to determine the State's role in a facility's MMP. However, EPA agrees with the comment that

FEBRUARY 28, 2001

formal approval/disapproval by the permitting authority of a facility's minimization plan is not required, and as such, the TMDL does not specify such a formal approval process. This is consistent with EPA's Pulp and Paper cluster rules (40 C.F.R. § 430.03) where EPA requires NPDES permittees to develop and implement Best Management Practices (BMP) plans, but does not require the permitting authority to approve the plan. EPA believes that the State should review the plans or progress reports, and the State must determine the appropriate feasible/achievable mercury effluent limits.

D.8. Comment: Several commenters stated that **the TMDL should not result in enforceable numeric water quality-based effluent limits (WQBEL) based on a Pollutant Minimization Plan (PMP.)**

Response: EPA disagrees with this comment. A PMP is required if the facility's effluent characterization finds that a facility has a "net addition" of mercury above the applicable water quality standard, which EPA interprets to be 2.8 ng/l. Once imposed through a facility's NPDES permit, the PMP would constitute a narrative water quality-based effluent limitation. Water quality-based effluent limitations are required by the NPDES regulations at 40 CFR §§ 122.44(d)(1)(i) and 122.44(d)(1)(vii)(A) and (B) whenever the permitting authority determines that the mercury discharges have the reasonable potential to cause or contribute to an exceedance of applicable standards. If PMP implementation reduces the "net addition" mercury effluent levels below the applicable water quality standard, an enforceable numeric WQBEL may not be needed or required because the permitting authority could determine that there is no reasonable potential. In all other cases, the narrative water quality-based effluent limitation would continue to be necessary. EPA believes that the permitting authority can calculate an appropriate numeric limit that reflects the levels of mercury present after implementation of the PMP. This would be consistent with 40 C.F.R. § 122.44(k), which authorizes narrative limitations, e.g., best management practices, in lieu of numeric limitations only when it is infeasible to calculate a numeric limitation.

EPA recognizes that some facilities that have undertaken pollutant minimization do not show a directly proportionate reduction in mercury that is consistently maintained. The permitting authority has discretion to factor variability into the derivation or implementation of the feasible/achievable permit limit; however, facility will need to demonstrate the variability of the pollutant concentration through sufficient monitoring.

D.9. Comment: The TMDL should state that the **permit limits should be expressed as an annual**

FEBRUARY 28, 2001

average, rather than monthly average or daily maximum.

Response: The implementation of the TMDL will be through the State of Georgia's NPDES program, therefore, the decision on the appropriate expression for the permit limit will be left to the State. If a facility's permits is based on Option A, an end-of-pipe concentration limit of 2.8 ng/l, Georgia will use its discretion to decide whether that permit limit should be expressed as an annual average, a monthly average/daily maximum, or a monthly/weekly average. If a facility's permit is based on Option B and a minimization plan is developed and a permit limit is needed, Georgia will again use its discretion as the permitting authority to ultimately decide how any permit limits based on mercury minimization are expressed. EPA's regulations at 40 CFR § 122.45(d) allows the permitting authority to use annual average limits when the use of monthly average/daily maximum or monthly/weekly average is impracticable. 40 CFR § 122.44(d)(1)(vii)(B) also provides authority to express permit limits as annual averages, where such limits are consistent with any approved WLA.

D.10. Comment: One commenter stated that facilities which receive in the TMDL a water-quality-based effluent limit may have a **compliance schedule of generally less than 3 years** to meet these limits.

Response: EPA agrees that the permitting authority may allow a facility to have a compliance schedule for meeting a permit limit consistent with the State's NPDES and water quality standards regulations.

D.11. Comment: Some commenters expressed concern that the Clean Water Act's **antibacksliding provisions or the State's antidegradation policies** will prevent point sources in Phase II from taking advantage of additional reductions achieved by air sources.

Response: EPA intends to revisit the TMDL in the near future in order to ascertain whether the air source reductions are occurring as projected and to reevaluate EPA's determination that water quality standards for mercury in the Savannah River will be attained within a reasonable time. It is possible, based on the facts at that future time, that EPA may be justified in revising the TMDL so as to allocate less loading capacity to air sources of mercury and more to NPDES dischargers, provided that the record shows that the revised allocations are being, or soon will be, attained. Some commenters have expressed concern that the Clean Water Act's antibacksliding provisions might preclude the revision of water quality-based effluent limitations

FEBRUARY 28, 2001

to be less stringent than limitations that are based on today's TMDL. As with all permits that are being renewed to include less stringent effluent limitations, future permits with less stringent effluent limitations based on a revised TMDL would need to meet one of the exceptions specified in the antibacksliding provisions of the Clean Water Act. However, it is important to note that EPA interprets the antibacksliding provisions of Clean Water Act section 402(o) to apply only to water quality-based effluent limitations that are revised after the date of compliance specified in the permit for those limitations. Therefore, revisions of effluent limitations before the deadline specified in the previous permit for those limitations would not need to meet one of the exceptions to antibacksliding. In addition, section 303(d)(4) provides exceptions to antibacksliding that permittees may demonstrate they meet.

Similarly, Georgia's antidegradation policies would not necessarily preclude a permit from being revised to impose less stringent effluent limitations. For waters not attaining water quality standards, Georgia's antidegradation policy requires, at a minimum, that the level of water quality necessary to protect the existing uses shall be maintained and protected. This level of protection is often referred to as "Tier 1" antidegradation policy. Less stringent effluent limitations derived from new wasteload allocations in a Phase II TMDL could be authorized if they met this "Tier 1" requirement and the rest of Georgia's antidegradation policies. Because the Phase II TMDL itself, at a minimum, would assure that existing water quality was maintained and, indeed, would contain calculations to improve the existing quality of the water, such effluent limitations should meet Georgia's "Tier 1" antidegradation policy. Georgia's antidegradation policy also provides that where the water quality is better than the minimum level established in the standards, that quality shall be protected unless the State determines, after a public process, that lowering of water quality from "new developments" is justifiable to provide social or economic development in the area where such waters are located. This level of protection is often referred to as the State's "Tier 2" antidegradation policy. It is not apparent whether Tier 2 would even apply at Phase II because Tier 2 applies only to high quality waters. However, if Tier 2 did apply and if permits were revised following Phase II with limitations authorizing then-current discharge levels (i.e., not "new developments"), such limitations should not constitute a degradation or "lowering of water quality" within the ambit of that policy. Rules and Regulations for Water Quality Control, Chapter 391-3-6-.03(2). Moreover, Georgia's Tier 2 policy authorizes a lowering in water quality under certain circumstances as described above.

D.12. Comment: One commenter is concerned that the **State's antidegradation policy will prevent point sources from taking advantage of additional reductions achieved by air** sources when the TMDL is revised during Phase 2. Point sources want the opportunity for additional loadings of

FEBRUARY 28, 2001

mercury in the future if the TMDL demonstrates in Phase 2 that adequate reductions in mercury will be achieved by air sources.

Response: As with all permits that are being renewed to include less stringent effluent limitations, future permits with less stringent effluent limitations based on a revised TMDL would need to meet one of the exceptions specified in the antibacksliding provisions of the Clean Water Act. However, it is important to note that EPA interprets the antibacksliding provisions of Clean Water Act section 402(o) to apply only to water quality-based effluent limitations that are revised after the date of compliance specified in the permit for those limitations. Therefore, revisions of effluent limitations before the deadline specified in the previous permit for those limitations would not need to meet one of the exceptions to antibacksliding. In addition, section 303(d)(4) provides exceptions to antibacksliding that permittees may demonstrate they meet. Similarly, Georgia's antidegradation policies would not necessarily preclude a permit from being revised to impose less stringent effluent limitations. For waters not attaining water quality standards, Georgia's antidegradation policy requires, at a minimum, that the level of water quality necessary to protect the existing uses shall be maintained and protected. This level of protection is often referred to as "Tier 1" antidegradation policy. Less stringent effluent limitations derived from new wasteload allocations in a Phase II TMDL could be authorized if they met this "Tier 1" requirement and the rest of Georgia's antidegradation policies. Because the Phase II TMDL itself, at a minimum, would assure that existing water quality was maintained and, indeed, would contain calculations to improve the existing quality of the water, such effluent limitations should meet Georgia's "Tier 1" antidegradation policy. Georgia's antidegradation policy also provides that where the water quality is better than the minimum level established in the standards, that quality shall be protected unless the State determines, after a public process, that lowering of water quality from "new developments" is justifiable to provide social or economic development in the area where such waters are located. This level of protection is often referred to as the State's "Tier 2" antidegradation policy. It is not apparent whether Tier 2 would even apply at Phase II because Tier 2 applies only to high quality waters. However, if Tier 2 did apply and if permits were revised following Phase II with limitations authorizing then-current discharge levels (i.e., not "new developments"), such limitations should not constitute a degradation or "lowering of water quality" within the ambit of that policy. Rules and Regulations for Water Quality Control, Chapter 391-3-6-.03(2). Moreover, Georgia's Tier 2 policy authorizes a lowering in water quality under certain circumstances as described above.

D.13. Comment: Several commenters have raised questions regarding **intake credits** in their comments. Some commenters argue that the release of pollutants into waters of the United States,

FEBRUARY 28, 2001

where those pollutants had previously been removed from such waters, does not constitute an “addition” of pollutants subject to regulation under the CWA. Several commenters suggested that EPA should follow the approach used by the State of Mississippi in the Bogue Chitto River TMDL, which provided a “no increase in mercury” WLA for point source dischargers.

Response: EPA’s position, detailed in the preamble to the proposed regulations for the Great Lakes System at 58 FR 20802, 20956-57 (April 16, 1993), is that discharge of any pollutant, including those in a facility’s intake water, is an addition of pollutants within the meaning of the Clean Water Act. The commenters’ assertion that the statute narrowly circumscribes the EPA’s discretion to interpret “addition” to include the discharge of intake pollutant is without support in the CWA. Similarly, there is no evidence in the language or legislative history of the CWA that Congress ever considered the precise question whether the release of intake water pollutants into waters of the United States is subject to regulation under the CWA. The statute provides simply that “any addition of any pollutant” to navigable waters from a point source is a discharge subject to the CWA. CWA section 502(12) (emphasis added). The pivotal fact for determining whether an addition has taken place is simply whether a pollutant is physically moved from outside of the waterbody into the waterbody by the discharger via a point source. See also Water Quality Guidance for the Great Lakes System - Supplementary Information Document; Government’s Brief in American Iron and Steel Institute, et al. v. EPA (DC Circuit No. 95-1348 and Consolidated Cases), filed on July 3, 1996.

In the permitting context, EPA has in limited circumstances established special permitting procedures for the discharge of intake pollutants being discharged into the same body of water. Where it can be demonstrated that particular intake pollutants in a discharge meet all conditions necessary to ensure that the discharge would have no different impact on the receiving water than the impacts that would occur in the absence of withdrawal and discharge of the pollutant, EPA believes that, as a matter of policy, it has the authority to authorize the permit writer to account for the presence of that pollutant in determining a discharger’s compliance with water quality standards, and in deriving limitations that are necessary to meet such standards. Such procedures, however, are viewed as an interim measure to be used in NPDES permits before the development and implementation of waste load allocations in a TMDL. See discussion of “no net addition” limitations in the Water Quality Guidance for the Great Lakes System - Supplementary Information Document. The concept of “intake credits” are not applicable in the context of a TMDL. Rather, the TMDL establishes a wasteload allocation for point sources which, in conjunction with any load allocation established by the TMDL, will result in the waterbody attaining standards for the designated pollutant.

FEBRUARY 28, 2001

In the context of this TMDL, EPA nonetheless shares commenters' general view that the TMDL should establish WLAs that allow the point sources to discharge mercury that is present in the facility's discharge, but are not due to contributions from the facility's process. EPA has done an assessment of the contributions of these sources of mercury, and determined that the TMDL can be met if dischargers are allowed to discharge the level of mercury in their intake water, provided the WLAs as specified in the TMDL are met. The mercury present in intake water has already been included by EPA in both its loading assumptions for Savannah River and its load reduction calculations. EPA has also considered whether increases in mercury concentration which may occur during the diversion of intake water would adversely impact the receiving water. For purposes of this TMDL, which addresses chronic mercury conditions and long term bioaccumulation of mercury in fish tissue, so long as there is no increase in mass in the discharge, there would be no additional adverse impact on the River. The permitting authority should consider, however, whether increases in concentration may present reasonable potential for the discharge to violate acute mercury standards.

The final TMDL clarifies that the permitting authority may write effluent limitations, consistent with these assumptions, that allow the discharge of source water by point sources so long as the facility does not add any mercury to the discharged water. The permitting authority should consider whether any increased mercury concentration in such discharges present potential for violation of the state's acute standard for mercury, and include appropriate limits to protect against such violations.

E. Comments related to Laboratory/Sampling Activities

E.1. Comment: One commenter expressed concern with EPA's water quality target of 2.83 parts per trillion because there are **no analytical labs in U.S. that can accurately measure mercury** to the +/- 10 parts per quadrillion level.

Response: EPA agrees with this comment. EPA laboratory technical experts agree that the difference between 2.83 and 2.84 parts per trillion is not discernible with current analytical procedures. EPA has revised the water quality target to be 2.8 parts per trillion.

E.2. Comment: One commenter expressed concern that analytical laboratories had been contacted and these **laboratories indicated they have experienced significant problems** associated with

FEBRUARY 28, 2001

analyzing for mercury at parts per trillion levels.

Response: The commenter did not provide the names of the laboratories contacted, or the labs' areas of expertise, or their Quality Assurance/Quality Control (QA/QC) practices. EPA agrees that many non-specialized labs might have difficulty meeting parts per trillion detection limits. However, a number of laboratories are now focusing on ultra-trace level mercury detection and can measure mercury reliably at the parts per trillion level. Some of the laboratories that are capable of ultra-trace level mercury detection are:

- Battelle Laboratory, Sequim, WA
- Frontier Geosciences–Seattle, WA
- Brooks-Rand–Seattle, WA
- Cebam Analytical–Seattle, WA
- Florida International University
- Florida Department of Environmental Protection

E.3. Comment: One commenter expressed concern that **false positives for mercury are likely** to result if “clean-hands” techniques cannot be used. The commenter is concerned that when composite-sampling equipment is used it will not be possible to use “clean hands” techniques for sampling, and an NPDES facility could show inaccurate exceedances of mercury permit limits.

Response: The commenter is correct that false positives could result if samples for ultra-level mercury are not collected using appropriate sampling techniques. The point source effluent samples collected by EPA during the September 2000 sampling survey were not composite samples, but were grab samples collected in teflon bottles. EPA is aware that guidance will need to be given to NPDES permittees in the future on options for appropriately sampling for ultra-trace levels of mercury. EPA's sampling and laboratory experts are currently considering such options, and will provide guidance in the future.

E.4. Comment: One commenter expressed concern that the **ultra-clean sampling techniques** required for mercury sampling raise significant concern about bias or contamination in a round of samples.

FEBRUARY 28, 2001

Response: Our sampling SOP and EPA Method 1669 for collection of samples for ultra-trace level mercury are designed to minimize or eliminate the chance of contamination. The efficacy of these techniques is demonstrated by the collection of blank samples which indicate the presence or absence of mercury in sample containers, sampling equipment, preservatives, etc.

E.5. Comment: The administrative record does not contain any information to support the **quality assurance and quality control methods** that are crucial to parts per trillion sampling.

Response: Our field sampling crews used special methods for the collection of samples to be analyzed for ultra-trace level mercury, i.e., surface water and sediment porewater. These methods, described in our sampling SOP (see: the Study Plan and the Data Report), and in EPA Method 1669, have been used by EPA Region 4 for a number of years. In addition to the sampling protocols and specialized sampling equipment, quality assurance/quality control measures are used, e.g., field blanks, equipment blanks and duplicate samples, to detect the presence of contamination in samples. These methods and procedures are now in the Administrative Record related to the development of the Savannah River Mercury TMDL. Additional QA/QC measures are implemented during sample preparation and laboratory analysis, as described in laboratory SOPs.

E.6. Comment: **EPA reported data in the TMDL Report at less than 0.1 ng/l**, but the method establishes a detection limit of 0.5 ng/l. If there is a different detection limit for methylmercury as opposed to mercury, this information should be included in the TMDL.”

Response: The analytical method used as part of the development of the Savannah River Hg TMDL, Method 1631 Revision B (May 1999), was designed for the determination of total mercury in the range of 0.5-100 ng/l. This is the practical range of concentrations suitable for any lab using this method. However, it is not the same as detection limits which are typically lower than practical ranges of concentrations stated in methods. Many labs that specialize in mercury analyses, including the EPA Region 4 analytical laboratory, have established detection limits that are lower than the general range. Detection limits are determined in each laboratory, depending on instrumentation, settings and other specific factors.

This is supported by Method 1631, Section 1.5: “The detection limit and minimum level of quantitation in this Method usually are dependent on the level of interferences rather than instrumental limitations. The method detection limit (MDL; 40CFR 136, Appendix B) for Hg

FEBRUARY 28, 2001

has been determined to be 0.2 ng/L when no interferences are present. The minimum level of quantitation (ML) has been established as 0.5 ng/L. An MDL as low as 0.05 ng/L can be achieved for low Hg samples by using a larger sample volume, a lower BrCl level (0.2%), and extra caution in sample handling.”

Method 1630 (August 1999), the analytical method used to measure methyl mercury as part of the Savannah River Hg TMDL, was designed for the determination of methyl mercury in the range of 0.02-5 ng/l. Again, this general range is not the same as detection limits. Those are determined at each analytical laboratory and can extend to concentrations much lower than the general range.

E.7. Comment: EPA’s data table in the proposed mercury TMDL shows **extreme variability in water column Hg concentrations** from one monitoring point to the next.

Response: Spatial variability is expected when sampling water quality constituents. If a water column sample is taken in one location where the water is more turbid, a particle of colloidal material could be taken in the sample that has mercury sorbed to it.

E.8. Comment: **Soils data should be in the TMDL** and explained how it was used. EPA should also explain where and how these samples were obtained.

Response: The TMDL document has been modified to include the soil data and how it was used in the TMDL calculation. The soil data collected during the sampling exercise was taken from upland soils outside the flood plain of the Savannah River. These measured soil values were used to compare the soil concentrations predicted by the model after the soils concentrations reached equilibrium with the atmospheric conditions.

E.9. Comment: Pore **data is not in the TMDL or Administrative Record**. Also, TSS and TOC data are not presented in the TMDL or the Administrative Record. Also, data for other constituents (e.g., sulfate, sulfide, nutrients, percent moisture in sediments, pore water sulfides, pH, conductivity, DO and temperature) are not presented in the TMDL or the Administrative Record.

FEBRUARY 28, 2001

Response: When EPA conducted the field study, additional water quality constituents were measured and reported in the sampling report which is included as part of the TMDL Administrative Record.

E.10. Comment: It is requested that the **24 point source dischargers whose effluent will be sampled be identified and the criteria for selecting these locations explained.**

Response: EPA requested that GA EPD designate the NPDES facilities to be sampled. GA EPD selected major dischargers (above 1 mgd) and industrial dischargers with the potential to discharge mercury in the Savannah River Basin.

E.11. Comment: The TMDL fails to acknowledge the fact that **sampling occurred within 12 hours after a significant rain event.**

Response: While a single rain event could influence the loading and flow of mercury to the river, it would have been necessary for the event to be basin-wide for it to make a significant difference in the TMDL's result. Also, since it could take up to two days for the load to be fully transported to the main stem from the watershed and some of the tributaries, the significance of this single event is further lowered. In subsequent phases of the TMDL, EPA could perform model sensitivity runs for this event.

E.12. Comment: Site-specific **data, gathered only over August and September 2000, may not be representative of average long-term conditions** (e.g., because they were taken during drought conditions).

Response: The field survey data are definitely not representative of average conditions. The model was tested against field survey data using drought loads and flows. The model was then used with average loads and flows to calculate mercury levels under long-term average conditions.

E.13. Comment: The use of a **one-time sampling event means that EPA has failed to capture any temporal and spatial variability of mercury** levels in water, sediment, and fish. Also, the use of a one-time sampling event to calculate the fraction of total mercury as methylmercury present in the water yields an unreasonably low number – fails to reflect seasonal variations, etc.

FEBRUARY 28, 2001

Response: EPA agrees that one survey does not capture temporal variability. The survey does give spatial variability, but it is not clear whether this spatial variability represent long-term spatial patterns. EPA is under a court-ordered schedule for finalizing the Savannah River Mercury TMDL. Such deadlines require that EPA and affected states establish TMDLs using the best available information at the time. EPA was under court order to finalize the Savannah River Mercury TMDL by June 7, 2000. In February 2000, EPA first proposed this TMDL, and received significant public comment regarding the lack of appropriate site-specific data in producing the proposed TMDL. As a result, EPA requested and was granted an extension by the Court to finalize the TMDL; however, the Court only allowed EPA an 8-month extension to February 28, 2001. Within the 8 month extension period, EPA developed a sampling plan for the 200 mile stretch of the Middle/Lower Savannah River; implemented the sampling plan by sending a team of EPA staff into the field for 3 weeks to collect the samples; analyzed samples and performed the required quality assurance review through an expedited effort that took six weeks from start to finish; modeled the transport of mercury over the watershed and in the Savannah River, and conducted 2 public meetings. The limited time available to EPA to complete this process allowed only a one-time field sampling study.

EPA agrees that one sampling event may not be adequate to fully characterize mercury in the Middle/Lower Savannah River Basin. Therefore, EPA is using a Phased TMDL development approach to allow for the collection of additional data in the basin to better characterize mercury in the watershed between now and 2004 when the TMDL will be revised. The TMDL report acknowledges that the field sampling study occurred during drought conditions that could not be avoided because of the limited amount of time available to EPA for conducting the sampling study. Please note that the Southeast has been in drought conditions for the last 4 years and remains in this condition today. It is not understood how the drought condition relates to the typical annual average conditions in the Savannah River Basin, and there is little data to understand how mercury in the watershed is affected by drought conditions.

EPA agrees with commenters that there is some uncertainty in the calculation of the fraction of the total mercury that is in the methyl form. It is the Agency's conclusion, however, that using site-specific data for the development of the fraction methyl mercury, even limited field data, is more appropriate than relying on literature or default values. The Phase II TMDL will be able to consider additional new data which will take into account different flow and seasonal conditions.

The administrative record for the Savannah River TMDL contains a data report for all of the data collected during EPA's sampling period. This includes protocols and references used in the data collection and analysis.

FEBRUARY 28, 2001

E.14. Comment: The **ultra-clean sampling techniques required for mercury sampling raise significant concern about bias** or contamination in a round of samples.

Response: In order to address potential concerns regarding contamination of samples, field blanks were used when field sampling occurred. These field blanks were treated the same as the samples and were analyzed in the same fashion.

E.15. Comment: The administrative record does not contain any information to support the **quality assurance and quality control methods** that are crucial to parts per trillion sampling.

Response: The field sampling and laboratory procedures follow documented procedures for chain of custody and quality control and quality assurance. This information is available from the contract laboratory that did the analysis.

E.16. Comment: EPA's data table in the proposed mercury TMDL shows **extreme variability in water column Hg concentrations** from one monitoring point to the next.

Response: Spatial variability is expected when sampling water quality constituents. If a water column sample is taken in one location where the water is more turbid, a particle of colloidal material could be taken in the sample that has mercury sorbed to it.

F. Comments related to the Margin of Safety

F.1. Comment: **The MOS is excessive.**

Response: A Margin of Safety (MOS) is a required component of a TMDL that accounts for the uncertainty about the relationship between the pollutant loads and the quality of the receiving waterbody. The MOS is typically incorporated into the conservative assumptions used to

FEBRUARY 28, 2001

develop the TMDL. EPA believes that the implicit MOS used in the development of this TMDL is reasonable given the one time sampling event that was used to characterize mercury in the watershed and the receiving waterbody model, and that mercury is a persistent, bioaccumulative toxin. The data collected during the one time sampling event portrays what can be expected in the Savannah River regarding mercury cycling, fraction of methylmercury and bioaccumulation factors. These factors are within the values reported in the literature and further support the approach used in this TMDL. A MOS is incorporated in this TMDL in the following manner:

By selecting the highest predicted water column concentration of mercury in the entire stretch of river to determine the load reduction needed to achieve Georgia's water quality standard. This approach conservatively assumes that fish are exposed to the highest water column concentration throughout the river and accounts for uncertainties associated with identifying the precise locations where the fish take in mercury;

By calculating BAFs from only trophic level four fish. This approach conservatively assumes that the public consumes only largemouth bass, when in fact, the typical diet may consist (perhaps even predominantly) of fish from other trophic levels that do not bioaccumulate mercury to the same degree as trophic level four fish;

By assigning a 1% load reduction to point sources even though future studies of mercury emissions from air sources may indicate that Georgia's mercury water quality standard can be achieved solely by controlling air sources. This helps account for EPA's lack of precise knowledge concerning the relationship between the effects of Clean Air Act controls and water quality;

By incorporating a number of conservative assumptions in deriving the estimate of anticipated emissions reduction. These are described in the Analysis of Atmospheric Deposition of Mercury to the Savannah River Watershed (2001). In addition, the resulting estimate does not take into account reductions resulting from voluntary control measures or new regulations. Therefore, reductions from air sources may be greater than presently estimated.

EPA agrees that there exists a level of uncertainty in the TMDL, but concludes that the MOS incorporated in this TMDL as outlined above does sufficiently account for such uncertainty. With the collection of additional site-specific data during Phase 2, EPA will be better able to quantify the margin of safety incorporated in this TMDL, reduce any associated error with the MOS, and revise the MOS, if needed.

F.2. Comment: The use of an **inappropriately large and unquantified MOS leads to an**

FEBRUARY 28, 2001

unrealistically low water quality target and exaggerated estimates of required load reductions.

If quantified, EPA's conservative assumptions yield an MOS of a minimum of 240% (and probably higher – because this percent does not account for the MOS already built into the reference dose (a factor of 10) or in load reductions.

Response: It is not EPA's procedure to determine or account for any margin of safety that may be built into the assumptions associated in the development of a water quality standard or interpretation of a narrative standard. Certainly other assumptions in the development of the TMDL provide for an implicit margin of safety. EPA disagrees that a 240% margin of safety exists in this TMDL.

F.3. Comment: Explain **how the MOS accounts for the models' margin of error and variability** introduced through the modeling process. EPA's statement that the MOS is incorporated implicitly through the modeling process by using the highest predicted water column concentration of mercury in the entire stretch of the river to determine load reduction is incorrect and misleading. Use of the highest predicted water column concentration in entire river stretch is too conservative.

Response: The selection of the highest predicted mercury concentration in the Savannah River as the basis for determining the required load reduction represents a reasonable methodology that insures that excursions above the water quality target will be minimal and protective of accumulation of mercury in trophic level 4 and 3 fish.

F.4. Comment: **EPA must quantify its MOS.** EPA's use of an implicit MOS (through conservative assumptions) does not reflect accepted water quality modeling methodology. PA's guidance for water quality modeling has specified the use of a 10 percent MOS.

Response: TMDL development methodologies do not state that a 10% explicit margin of safety should be used when developing TMDLs. Applying a 10% margin of safety to the model results in this TMDL would change the calculated reduction by an additional 10%. EPA guidance (Guidance for Water Quality-based Decisions: The TMDL Process; EPA 440/4-91-001) indicates that a margin of safety is a required component of a TMDL that accounts for the uncertainty about the relationship between the pollutant loads and the quality of the waterbody. The MOS is normally incorporated into the conservative assumptions used to develop the TMDL (generally within the calculations or models).

FEBRUARY 28, 2001

F.5. Comment: **Considerable uncertainty justifies a higher MOS.**

Response: EPA agrees that there exists a level of uncertainty in the determination of the applicable water quality standard used in this TMDL and subsequent load reductions. The assumptions used to make these decisions, however, are supported by site-specific data in the Savannah River basin. With the continued collection of data over time this uncertainty can be quantified and the TMDL can be adjusted, if needed.

G. OTHER/MISCELLANEOUS COMMENTS

G.1. Comment: One commenter asked for an explanation as to whether the use of an **annual average load of mercury rather than a daily maximum load** is related to the State's water quality standards as chronic criterion and not as acute criterion.

Response: The use of annual average loading is related to the State's water quality standards for the protection of human health, but not with respect to the chronic versus acute criterion issue. Rather, the State applies their human health criteria at a flow equivalent to the annual average flow. This application of the State's water quality standards calls for an equivalent approach in the TMDL. This is one reason why the TMDL is expressed as an annual average loading as opposed to a daily maximum load.

G.2. Comment: One commenter questioned the **validity of regulating mercury** when EPA's latest guidance has clearly determined that methylmercury is the pollutant of concern.

Response: While the commenter is correct that the concern is with methylmercury in fish tissue, this compound is derived from the metabolism of mercury in the environment by microbiological organisms. The only way to control the amount of methylmercury that accumulates in fish tissue is to control the introduction of mercury to the River, and thereby reduce the amount of mercury that is metabolized to methylmercury. Therefore, it is valid, and in fact necessary, to regulate the discharge of mercury to the environment for the protection of public health from the consumption of fish.

FEBRUARY 28, 2001

G.3. Comment: Two commenters stated that **not a single sample of ambient water** collected by EPA in the Savannah River **exceeded the State's aquatic life criterion of 12 ng/l.**

Response: Both commenters are correct. However, as discussed above, Georgia's aquatic life criterion of 12 ng/l is not the appropriate water quality criterion for mercury for the protection of human health for this waterbody. The commenters are reminded that the water is impaired due to fish tissue levels of methylmercury even though the ambient water is well below 12 ng/l. This indicates that site specific factors (such as bioaccumulation and percent methylmercury in the waterbody) are leading to unacceptable fish tissue levels of methylmercury at ambient water concentrations below 12 ng/l.

G.4. Comment: Some commenters stated that the **use of EPA's Regional Lagrangian Model of Air Pollution (RELMAP) for atmospheric deposition** in the Savannah River TMDL appears to be inconsistent with EPA's decision to not use the RELMAP modeling results in the South Georgia mercury TMDL for the Ochlockonee watershed proposed by EPA on August 30, 2000. In the South Georgia mercury TMDLs EPA used actual field data from a Mercury Deposition Network (MDN) monitoring site in the Okefenokee Swamp rather than the RELMAP model results. EPA does not explain how the possible shortcomings of the RELMAP modeling (as mentioned in the South GA mercury TMDLs) are overcome in using RELMAP in the Savannah River TMDL.

Response: The South Georgia TMDLs were developed under court-order and as such were produced within a relatively short period of time. As a result of the limited time to develop and propose these TMDLs, a complex analysis of the sources which emit mercury to the air, and their estimated reductions over the coming decade was not possible. The MDN site utilized in the South Georgia TMDLs lies within the Ochlockonee Watershed in South Georgia and provides data for mercury in rainfall for recent years. Because this data is more recent than the RELMAP model results, and because it represents measurements from within the watershed, the MDN data was preferred for estimating mercury deposition from rainfall. The mercury dry deposition component used in developing the South Georgia mercury TMDLs did use the RELMAP modeling results by comparing them with the MDN data. (See section 7.1.1. of the Ochlockonee mercury TMDL report.) Therefore, RELMAP results were used in both the South Georgia and Savannah River TMDLs, in slightly different ways.

For the Savannah River TMDL, the court granted an extension of time for EPA to complete this TMDL. As a result, a comprehensive analysis was made of the air emissions sources and estimated reductions in future years which are expected under compliance with national rules limiting toxic emissions. In conducting the analysis, EPA considered using actual monitoring data

FEBRUARY 28, 2001

from the nearest Mercury Deposition Network (MDN) site located in Richland County, South Carolina. This site is approximately 90 kilometers (56 miles) from the edge of the Savannah River watershed. EPA compared the MDN data, for wet deposition, with the RELMAP modeled results for wet deposition and concluded that there is reasonable agreement between the modeled and monitored results, given that the MDN site is outside the watershed and that there is natural variation year to year in the monitored data. (A new MDN monitor has been set up late in 2000 at the Savannah River Site, within the watershed. Data from that site were not available for this analysis.) Therefore, the RELMAP results were deemed appropriate for use in Savannah River mercury TMDL for estimating air deposition of mercury. The advantage of using the RELMAP results over the MDN data is that the model provides a means to develop a more complex analysis of sources and deposition of the mercury species found in the atmosphere. In calculating estimates of the expected reductions in mercury from the air sources, EPA obtained more recent emissions data on the sources in Georgia and South Carolina from the respective state agencies. This information was used to evaluate current mercury emissions in the vicinity of the Savannah River watershed and the estimates of future emissions.

G.5. Comment: One commenter expressed the concern that the **TMDL process is ill-suited for effectively managing mercury** in the nation's waterbodies because of the uncertainties that need to be addressed such as: the appropriate water quality standard; the relationship between load reductions and discernible water quality improvements; the appropriate sources from which load reductions should be sought; the extent of load reductions that should be imposed; the time it will take before any discernable reduction can be expected; and the economic implications of regulatory options for mercury.

Response: EPA agrees with the commenter that there are uncertainties regarding how the TMDL process should respond to the problem of unacceptable levels of mercury in fish tissue in our nation's waters, but we disagree that the TMDL process is not appropriate for managing mercury effects in water. EPA believes it is important to know how much mercury loading can be allowed in a waterbody while protecting human health from the consumption of unacceptable levels of mercury in fish tissue. Because the accuracy of the total allowable load calculated in the TMDL is uncertain, EPA is committing to review and revise the Savannah River TMDL in the near future. Despite these uncertainties, EPA has a responsibility to carry out the Clean Water Act which includes the development of TMDLs, and EPA must respond to Court-ordered commitments, under which this Savannah River mercury TMDL has been developed.

FEBRUARY 28, 2001

EPA is making considerable effort to establish procedures and policies that will make the TMDL program an effective mechanism for responding to the mercury fish tissue problem. EPA is funding two pilot studies to demonstrate how a state could proceed with a TMDL for mercury where a significant source of the load is from air deposition. Initial modeling results from the pilot TMDL study in Florida indicate a clear relationship between reductions in mercury in emissions to the air and later reductions in mercury concentrations in fish tissues. The models in the pilot study simulated several years and showed that changes in fish occur gradually. While final results are not yet available, the TMDL appears to be consistent with multi-media field studies in south Florida. EPA believes this pilot shows that current modeling technology is suitable to support TMDL development for mercury, and that uncertainties can be addressed by a margin of safety, a monitoring plan, and/or a phased approach to the development of a TMDL.

EPA is also taking other steps to make the TMDL process meaningful for managing mercury in the nation's waters. The Agency recently released new human health criterion guidance for mercury in fish tissue (0.3 mg/kg). As noted in the Federal Register notice announcing the availability of the new criterion guidance, EPA expects the states to use the federal criterion recommendations in updating their water quality standards. The guidance document includes recommendations regarding how states can adapt the 0.3 mg/kg value to reflect site-specific factors. EPA expects states to adopt a new or revised water quality criterion for methyl mercury by early 2006 at levels necessary to protect human health. As states adopt a new or revised human health criterion for methylmercury, TMDLs can be established based on a state's duly-adopted criterion. The Agency is also conducting revised national modeling of mercury deposition which will allow states to identify air sources of mercury in their state as well as in surrounding states which will provide better information for TMDL development and will provide states with greater information that they can use to control mercury emissions to air.

G.6. Comment: Two commenters expressed concern that in order for an NPDES facility to meet the criteria-end-of pipe limits established as an option in the TMDL, **facilities would need to test raw materials for the presence of mercury** to determine if they contain sufficient mercury to trigger a violation of the permit limit. Such testing would be more time-consuming and expensive than justified by the environmental benefit.

Response: The commenters correctly recognize that raw materials used in manufacturing processes may be contaminated by mercury. Common manufacturing chemicals, such as sodium hydroxide, may be contaminated by mercury as a result of the process by which they

FEBRUARY 28, 2001

are produced (as a by-product of the chlor-alkali industry's mercury cell process). Sulfuric acid, a by-product of smelting operations, may also be contaminated with mercury. OSHA's Material Safety Data Sheets (MSDS) are required to report mercury in raw materials only if concentrations exceed 10,000 parts per million. This may not be helpful in identifying raw materials that could cause effluent concentrations to be in the parts per trillion range.

An alternative available to a facility is to specify low-mercury chemicals when making procurement choices, such as chemicals manufactured by a mercury-free process such as ion exchange-membrane cell. A Certificate of Analysis may be requested of the vendor prior to purchasing such mercury-free materials, and it should specify the concentration, not the percentage, of mercury in the product. It is expected that vendors will provide this analysis, and that demand for such products will accelerate their production.

A change in the source of the raw materials used in a manufacturing process is a voluntary activity which has a beneficial impact on the front end of the wastewater treatment process by minimizing or eliminating the source of mercury. The Western Lake Superior Sanitary District (WLSSD), which has started implementing mercury reduction strategies, has demonstrated the benefits of this voluntary approach. A paper manufacturer was able to reduce its mercury mass load to the wastewater treatment plant by 98% by switching sulfuric acid suppliers. Georgia and South Carolina have Technical Assistance Agencies that can provide Source Reduction (P2) opportunity identification for Georgia facilities. A P2 Audit may identify various alternatives available to the facility to reduce effluent concentrations of mercury.

G.7. Comment: One commenter (DOE Savannah River Site) expressed concern to the Office of Management and Budget (OMB) that the **estimated capital costs to meet limits below 12 ppt could be as high as \$563 million**, with maintenance costs as high as \$34 million. [DOE, commenter # 22, p. 5.] Another commenter expressed concern that removal of one pound of mercury can cost up to \$10 million. [Georgia Power, commenter # 13, L.C. p. 2]

Response: Federal and state authorities recognize that removing mercury at the back-end of the wastewater treatment process to meet parts per trillion levels in effluent may be prohibitively expensive. This is why EPA is offering NPDES permittees affected by this TMDL to choose the option of mercury characterization and, where necessary, minimization planning.

FEBRUARY 28, 2001

EPA recognizes that the most cost-effective measure for treating mercury is to reduce or prevent the introduction of mercury to the wastestream (i.e., at the front-end of the industrial process.) The characterization/minimization approach provided in this TMDL is based on an approach adopted by the State of Ohio's NPDES program. Ohio requires NPDES permittees to meet an end-of-pipe limit of 12 ng/L unless the facility receives a variance from the permit limit. This statewide general variance from mercury permit limits, approved by EPA, is based on the economic cost associated with reducing mercury concentrations in effluent. Ohio's variance process requires a permittee to identify known or suspected significant sources of mercury to the waste stream and provide documentation that there are no readily available measures to reduce mercury in the waste stream other than end-of-pipe controls. Ohio's program requires facilities to provide monitoring data for suspected sources of mercury as well as the treatment plant's effluent. This monitoring data is used to evaluate pollution (mercury) minimization plans provided by a facility.

G.8. Comment: Several commenters stated that EPA's Office of Science and Technology (*sic*) has a publication on treatment technologies for mercury which indicates that the **best available treatment technology can achieve on 500 ng/l.**

Response: The Office of Research and Development report which the commenter cited (EPA/625/R-97/004) explores the effectiveness of treatment technologies for a range of influent mercury concentrations, and reports a range of effluent mercury concentrations for aqueous solutions of varied composition. This report, published in 1997, provides a compilation of literature dating back to 1974. The Report was published prior to EPA's promulgation of a laboratory method for detection of mercury down to 0.5 parts per trillion. The report provides a summary of technologies that have been applied to mercury removal in wastewater and demonstrates that mercury removal performance varies considerably with the character of the wastewater. EPA now believes that significantly lower levels of mercury below 500 ng/L may be achieved using an aggressive pollutant minimization program. Such programs may employ product substitution, within plant unit operation/process modifications, and/or within plant/community source controls, which treat low volume, high concentration wastes to significantly lower levels before they are discharged to a facility such as a POTW or permitted industrial treatment facility.

There are recent studies which demonstrate the efficiency of municipally-owned wastewater treatment facilities in removing mercury from the treatment plant's influent. Secondary treatment systems have been shown to remove from 88 - 99% of the total influent mercury in

FEBRUARY 28, 2001

these studies (Water Environment Research 68(2): 229-234; Water Air and Soil Pollution 80:1181-1190; and Biogeochemistry 40: 279-291) with the biosolids retaining the balance of the mercury contamination. A mercury reduction program is the key to managing mercury effluent concentrations without reliance on control technology at the treatment plant.

G.9. Comment: One comment questioned, “Why can't these **[air] sources be declared point sources** and treated like any other point source and required to reduce their emissions to levels compatible with water quality standards?”

Response: Facilities that emit pollutants directly to the air are not currently subject to NPDES permitting requirements for those air emissions. Nevertheless, their loadings are reflected in the TMDL in the form of load allocations. In this sense, the distinction between being characterized as a point or a nonpoint source is not significant. On the question of TMDL implementation, which is also raised by the commenter, EPA expects mercury loadings from air sources to be reduced to necessary levels through the implementation of existing Clean Air Act requirements. In other words, the air sources, when taken as a whole, already are subject to a number of requirements that would result ultimately in pollutant loading reductions necessary to support the attainment of water quality standards for mercury in the Savannah River. Because EPA believes that these Clean Air Act authorities will be sufficient to implement this portion of the TMDL, the Agency does not believe it is necessary to address the question whether other authorities, e.g., under the Clean Water Act, might have accomplished the same result.

G.10. Comment: The **microbial component of demethylation should be considered** (i.e., the model shouldn't be limited to demethylation caused by UV).

Response: The model considered light-driven demethylation in the water column (surface rate constant of 0.1 per day), and microbially driven demethylation in the sediments (rate constant of 0.0001 per day in Table 9).

G.11. Comment: EPA's **representation of mercury cycling is incomplete** and should be revised.

Response: The mercury cycling diagram presented in the February 2000 proposed TMDL was modified in the final TMDL to include a pathway for demethylation.

FEBRUARY 28, 2001

G.12. Comment: **Changes were made to model inputs and calculations** following the TMDL proposal date. Such changes should not appropriately be considered; reproposal of the TMDL would be necessary to authorize their use.

Response: Changes were not made in the model inputs and calculations following the proposal of the TMDL. When information and files were transferred into the administrative record and published on the CD's, file dates and times were updated.

G.13. Comment: EPA provides **no support for its assumption that fish migrate throughout the watershed.**

Response: Typically largemouth bass migrate within a 15 mile radius from the point at which they are found.

G.14. Comment: The **TMDL ignored the amount of mercury and methylmercury** that enters the Savannah River from weathering of naturally occurring soils. The TMDL fails to consider natural sources of mercury. These sources may mean that the TMDL is not attainable even with the most restrictive control mechanism.

Response: The initial mercury concentrations in the soil (about 20 ng/g) would be interpreted as natural. In addition, a fraction of the atmospheric deposition would be either natural or recycled regional and global anthropogenic mercury. It is difficult to determine exactly how much of the deposition is ultimately natural in origin. Additionally, EPA's watershed model does not account for mercury sources from the weathering of soils and other substrate. The contribution of mercury from these sources is minimal compared to the atmospheric sources.

G.15. Comment: **The flow rate for Citgo is too high.**

Response: The flow rates that were reported in the administrative record were obtained from the Georgia EPD's NPDES Permit Program. The flow rates obtained from EPD for

FEBRUARY 28, 2001

municipalities are typically actual flows from the NPDES permitted discharge, while flow rates from industrial facilities are typically the design flow for the facility. EPA will investigate why the reported flow is too high. EPA did not try to obtain flow records for the actual sampling period to include in the TMDL

G.16. Comment: How does this TMDL take into account **seasonal variation**? Why is it reasonable to construe the statute to authorize seasonal variation to be accounted for in a single TMDL (via annual average) rather than by establishing season-specific TMDLs (e.g., with daily loads)?

Response: The annual average load calculated in this TMDL does consider seasonal variation by taking into account the impacts of changes in rainfall intensity and duration throughout the year and from one year to another. Furthermore, use of an annual average load is consistent with how the State of Georgia develops permits for human health constituents.

Wet deposition is greatest in the winter and spring seasons. Mercury is expected to fluctuate based on the amount and distribution of rainfall, and variable emissions from local and distant atmospheric sources. Since the TMDL is calculated as an annual average load, daily or weekly inputs are less meaningful than total annual loads over many years. The use of an annual load allows for integration of short-term or seasonal variability. The short-term variation in mercury loads do very little to increase or decrease mercury concentrations in fish tissue, but rather long-term exposure using annual average loads best portrays the time history of mercury concentrations a fish is exposed to in its lifetime.

G.17. Comment: **The watershed area is incorrect.**

Response: The watershed areas documented in the TMDL will be corrected to represent the appropriate area.

G.18. Comment: There are **31 not 32 watersheds** in the Savannah River Basin for the TMDL.

Response: The number of watersheds designated in the TMDL document will be changed to reflect 31 watersheds.

FEBRUARY 28, 2001

G.19. Comment: The TMDL **lacked documentation and a working computer code for WCS** used to compute loadings to the mainstem.

Response: A copy of the documentation and program code are in the Administrative Record. Individuals who requested a copy of the WCS tool were provided a copy of that information.

G.20. Comment: There is **new information in the Administrative Record** (AR), but not in the TMDL.

Response: The purpose of the administrative record is to provide all information that was considered or relied on in the development of the TMDL. Not all information in the AR needs to be explicitly included in the TMDL document.

G.21. Comment: There were **errors in the spreadsheets** on the CD in the AR.

Response: The Commenters are correct that one of the columns heading in a spreadsheet was mislabeled between fraction and percent. This did not cause an error in any of the calculations.

G.22. Comment: **WCS shortcomings leads to overestimates and misrepresentations.**

Response: The general concern expressed by this section of comments is not that the WCS-M overestimates total mercury loadings from the watershed to the tributary system, but that it overestimates the contributions due to post-industrial deposition of atmospheric mercury (by underestimating natural sources to the soil). The WCS-M was calibrated to observed soil concentrations using reasonable atmospheric deposition estimates, and so EPA believes that the predicted total watershed mercury loadings are reasonable. We agree that there is uncertainty about the ultimate origins of the mercury in soil (recent atmospheric deposition versus release of mercury from historical deposition and natural weathering from deeper in the soil column). There is reasonable evidence, however, indicating that the surface mercury balance is

FEBRUARY 28, 2001

dominated by atmospheric deposition (i.e., Lindberg's work at Oak Ridge National Lab, as cited in the Mercury Report to Congress), and that underlying sources of mercury are less significant. This is an area in which further studies should help refine our estimates of watershed mercury loadings.

G.23. Comment: The **complexity of the fate of Hg in soils is not accounted for** by the TMDL's simple approach.

Response: The model uses a partition coefficient (10^4 L/kg) to divide divalent mercury between the dissolved and particulate fractions in soil. The partition coefficient was derived from empirical data, and is consistent with the approach and values used in the Mercury Report to Congress and other published studies. The real world is always more complex than a model representation (even if we chose to include 28 mineral forms and 50 complexation reactions). The model must capture the important features of the real world controlling mercury transport and transformation. The commenters gave no evidence that the partition coefficient does not adequately separate mercury between the dissolved and particulate forms. The commenters speculate that in wetland soils, mercury may be complexed as cinnabar and rendered unavailable to methylation and bioaccumulation. While this is possible in lower layers of wetland soils, empirical evidence indicates that wetlands are actually an important source of methylation in the watershed.

G.24. Comment: There is **no information on how infiltration or evapotranspiration is calculated**.

Response: Infiltration and evapotranspiration are calculated using conventional hydrologic approaches and terms. Infiltration is based on Horton's equation, which adjusts infiltration based upon soil type. Evapotranspiration is derived from meteorological conditions including site-specific pan evaporation data, impervious area and landuse.

G.25. Comment: **The infiltration term is incorrect.**

Response: The commenters misunderstood the symbol "I", which stands for irrigation flows,

FEBRUARY 28, 2001

not for infiltration.

G.26. Comment: **Ground water contributions that may be significant are not accounted for.**

Response: The model does not calculate mercury transport from the soil through shallow ground water to streams as baseflow. The commenters speculate that this might be important, but offer no evidence. Soil mercury budgets indicate that leaching is a minor pathway. We are not aware of significant mercury concentrations in shallow wells, and we believe that weathering in deep soils would be a very slow source of mercury to the ground water due to its very low solubility. We agree that wetlands adjacent to streams might deliver some mercury through shallow ground water, although we believe the overall contribution would be a small fraction of the overall watershed loading. Wetlands are potentially important features of the watershed in offering sites for methylation, and future developments of the WCS model should focus on them.

G.27. Comment: There is **no documentation of soil base reduction rates.**

Response: The soil base reduction rate does indeed strongly influence the model results. It is treated in the TMDL the same way as it is considered in the Mercury Report to Congress (see Volume III of the Mercury Report to Congress) at:
“<http://www.epa.gov/ttn/uatw/112nmerc/volume3.pdf>” (pages 4-32 and B-19,20). These rates are based on studies published by Lindberg and Carpi.

G.28. Comment: There is **no basis provided for the calculation of sediment delivery ratio** or pollutant enrichment factor used in the USLE.

Response: The USLE was indeed originally developed for agricultural land uses, but it has been parameterized for use in watersheds with other vegetation and cover. There are published cover factors for meadow and forested areas as well as for agricultural areas.

We used standard methods and values for the enrichment factor (EF) and sediment delivery ratio (SD). The EF value of 2 was taken as a default from the Mercury Report to Congress, Volume III, p. B-46. Values for EF range from 1 to 5, but are calculated to be from 1.5 to 2 for normal

FEBRUARY 28, 2001

erosion events (0.08 to 1 tons per hectare) and 2.6 for large erosion events of 20 tons per hectare). The SD was calculated as a function of subwatershed size following a standard formulation of Vanoni (1975) as reported in the Water Quality Assessment Manual (Mills et al., 1985, pp. 177, 178).

G.29. Comment: **The contribution of weathering and the release of mercury to the soil profile are overlooked.**

Response: We are simulating the upper soil layer only where atmospheric interactions predominate and weathering is expected to be insignificant as a source of mercury. Published soil mercury flux studies by Lindberg at Oak Ridge National Laboratory ignore weathering as an insignificant source (see, for example, the conceptual diagram with measured fluxes of mercury in soils in Lindberg, 1996, "Forests and the Global Biogeochemical Cycle of Mercury: The Importance of Understanding Air/Vegetation Exchange Processes," in Baeyens et al (eds), Global and Regional Mercury Cycles: Sources, Fluxes and Mass Balances, printed in the Netherlands). Release of mercury through weathering should be a very slow process because the solubility product for divalent mercury minerals such as cinnabar is very small (about 10^{-52}). While mercury concentrations in the bedrock and lower soil layers could be influenced by weathering because of the long times available, the atmospheric exchange, runoff, and erosion processes active in the upper soil layer are much faster than the expected weathering release rates.

G.30. Comment: Assuming **all erosion is sheet erosion** of the top layers of the soil is flawed and will lead to gross over-estimation of post-industrial mercury loads.

Response: The calculated erosion load is from the watershed surfaces and does not include erosion from gullies. We agree that erosion across a watershed is variable. The model is intended to capture long-term average erosion processes averaged across subwatershed areas, not the spatial and temporal variability associated with them. Not all the eroded soil is delivered to the stream. Most is deposited on the watershed, and may be picked up by later events. We believe that the calculated erosion loading of mercury delivered from the watershed is reasonable. We agree that erosion from gullies could provide an additional mercury load from deeper soil layers with pre-industrial concentrations (some mercury on the surface of gullies would be recently deposited by atmospheric dryfall and recently eroded upland solids).

FEBRUARY 28, 2001

We believe that gully erosion loadings of mercury would be small compared with the other entire watershed loading processes, but this needs more study.

G.31. Comment: Assuming **no losses of mercury accumulating on impervious surfaces** may not be realistic.

Response: Some of mercury deposited in dryfall may be blown to watershed soil surfaces, and some may be reduced and revolatilized back to the atmosphere. Some would no doubt remain. We know of no study of mercury buildup on impervious surfaces on which to base a model calculation. Most mercury in rainfall should be transported quickly from impervious surfaces to the stream tributaries with little loss.

G.32. Comment: **Dry and wet deposition rates appear too high.**

Response: EPA used the best available information for wet and dry deposition in the Savannah River basin in the development of this TMDL. Independently, the EPA Region 4 Air Program reviewed the deposition rates used to drive the watershed model. The example table in the WCS documentation does not represent the Savannah River Basin. We used dry deposition rates of 11 ug/m²-yr, and wet deposition rates averaging about 20 ug/m²-yr. This gives a total deposition averaging 31, compared with the range of 20-30 that the commenters recommended.

G.33. Comment: **Watershed depth of incorporation appears too low.**

Response: EPA used a watershed depth of incorporation of 2 cm, not 1 cm that was in the WCS example. We calculated the upper soil layer only because that is the layer exchanging with the atmosphere and subjected to overland runoff and erosion. We did not attempt to simulate mercury fate through the soil profile because leaching of insoluble compounds is generally a slow process that is not expected to contribute significant loading to streams.

FEBRUARY 28, 2001

G.34. Comment: **Initial (pre-industrial) soil concentration seems unreasonably low.**

Response: The calculated erosion load is from the watershed surfaces and does not include erosion from gullies. EPA agrees that erosion across a watershed is variable. The model is intended to capture long-term average erosion processes averaged across subwatershed areas, not the spatial and temporal variability associated with them. Not all the eroded soil is delivered to the stream. Most is deposited on the watershed, and may be picked up by later events. EPA believes that the calculated erosion loading of mercury delivered from the watershed is reasonable. EPA agrees that erosion from gullies could provide an additional mercury load from deeper soil layers with pre-industrial concentrations (some mercury on the surface of gullies would be recently deposited by atmospheric dryfall and recently eroded upland solids). EPA believes that gully erosion loadings of mercury would be small compared with the other entire watershed loading processes, but this needs more study.

EPA did not attempt to reconstruct a time history of buildup in the upper soil layers of the Savannah River watershed, which would have required accurate pre-industrial soil concentrations along with a mercury deposition history and changing watershed characteristics. Rather EPA simulated soil buildup from zero to near steady-state conditions at 50 years in response to present loadings. These predicted soil concentrations were close to the observed soil concentrations, which gave us some confidence that predicted watershed loadings for present conditions are reasonable. EPA agrees that present soil concentrations are influenced by natural background levels as well as the depositional history (along with changing watershed characteristics). More data and modeling are needed to better distinguish between these influences.

G.35. Comment: **Simulated total mercury concentration**, watershed, no-till, row crops, transitional and evergreen forest seem high.

Response: The commenter was looking at the illustrative example in the back of the WCS documentation. The deposition rates and buildup were included for illustrative purposes.

FEBRUARY 28, 2001

G.36. Comment: Since the model has many empirical formulas and parameters, it is not understood **how the model could be run without some sort of calibration.**

Response: The model was calibrated to observed data measured in the watershed. The loads to the waterbody were used to calibrate the model to the conditions that existed at the time of the sampling event. The model was then run under annual average load and flow conditions.

G.37. Comment: EPA has **inappropriately calibrated its models** used to simulate mercury fate and transport and has overestimated load reductions required to meet the WQT.

Response: There appears to be a misunderstanding between the example in the WCS documentation and loads calculated in the TMDL. The TMDL will be modified to show the comparison between the measured and simulated watershed soil concentrations.

G.38. Comment: One commenter **questions the model assumptions and calibration.** The 3 furthest downstream segments do not have a good model fit. The model's failure here is notable and needs discussion in the TMDL. Oversimulation of sediment and water concentrations in downstream segments is crucial.

Response: The model does have a good fit in downstream segments for total mercury, but not as well for methylmercury. EPA certainly could manipulate the methylation/demethylation to match what was measured. It should be pointed out that this overestimation of MeHg does not affect the outcome of the TMDL in that average information collected in the field was used to derive the water quality target, and the model's prediction of total mercury was used to determine the reduction.

G.39. Comment: **Are simulated mercury values based on dissolved mercury?**

Response: The water quality model simulates the following forms of mercury: Hg(0), Hg(II) and MeHg. For each of these forms the model predicts how much is associated (sorbed) to solids and how much is in dissolved form.

FEBRUARY 28, 2001

G.40. Comment: **Discrepancies exist between observed and predicted mercury concentrations in sediment.**

Response: EPA agrees that predicted vs. observed sediment concentrations did not match as well as the water column. A sparse number of sediment samples were taken in areas where it might not have been a depositional zone. Additional sediment samples need to be taken to better parameterize mercury concentrations in the river sediments.

G.41. Comment: **It is unclear if estimates of mercury loading from upstream inputs (i.e., Hartwell Dam) were used.**

Response: The concentration of mercury measured during the field sampling in the tailrace of the Strom Thurmond Dam was used as the upstream boundary for the water quality model.

G.42. Comment: **EPA used the highest predicted value from modeled segments; model segments do not correspond to listed segments.**

Response: The River was divided into segments for the water quality model based upon hydraulic conditions of the river and to maintain stability in the model's calculations. No attempt was made to develop model segments that coincide with the segments of the river listed in the fish consumption guidelines. Inherently the model encompasses all of the listed segments covered by the fish consumption guidelines.

G.43. Comment: **The load reduction approach is extremely conservative.**

Response: The method in which the load reduction is calculated is conservative in that it assumes a linear relationship between load reduction and water column concentration. During Phase II development of this TMDL, it is expected that additional data will be collected and that the technical approach for evaluating and predicting mercury will be advanced. As these developments occur, it is expected that we will be better able to predict the fate and transport

FEBRUARY 28, 2001

of mercury from the watershed to the receiving waterbody rather than relying on the more simplistic/conservative approach currently used.

G.44. Comment: **EPA should not base the load reduction on any one segment**, but on the difference between the average concentration in the river and the WQT (e.g., the geometric mean of the data is 2.41 ng/l; the WQT is 2.83 - therefore no reductions are needed).

Response: Through this TMDL, it is EPA's intent to determine the applicable water quality standard and associated load reductions to reach fish tissue residue values for the protection of human health. EPA selected the highest predicted water column concentration of mercury in the entire stretch of river to determine the load reduction needed to achieve Georgia's water quality standard. This approach conservatively assumes that fish are exposed to the highest water column concentration throughout the river and accounts for uncertainties associated with identifying the precise locations where the fish take in mercury.

G.45. Comment: The commenter disagrees with **how required load reduction is determined**; contends that bioaccumulation in fish is not driven by input load to the system but by that portion of the input load that is retained by the system; therefore, it can be argued that the required load reduction is 3.5 kg/yr not the 26 kg/yr proposed by EPA.

Response: The accumulation of mercury in fish tissue is not directly correlated to the load that is currently being realized by the fish, but the load that a fish is exposed to over its entire lifetime.

Specific comments received on the December 8, 2000 TMDL and specific comments received on the February 8, 2000 TMDL that are still relevant or have not been superseded by more recent comments:

1.a.

COMMENT

Ionic mercury is all but ignored in calculating the TMDL. This constitutes the majority of mercury in the river and there should be some mechanism for determining how much of a toxic threat it is. Are the

FEBRUARY 28, 2001

data on ionic mercury sufficient to determine the threat to public health from that source ?
Frank Carl, 14501 Smith Road, Charlotte, North Carolina 28273, December 18, 2000

1.b.

COMMENT

Why can't the sources of airborne mercury be declared point sources and treated like any other point source and required to reduce their emissions to levels compatible with water standards ?
Frank Carl, 14501 Smith Road, Charlotte, North Carolina 28273, December 18, 2000

1.c.

COMMENT

With significant levels of soluble and particulate mercury in the water, isn't it possible that mercury might be accumulated in fish via absorption in the gills ? This mechanism may make a significant contribution to the bioaccumulation in fish.
Frank Carl, 14501 Smith Road, Charlotte, North Carolina 28273, December 18, 2000

1.d.

COMMENT

Remains unconvinced that there is a margin of safety built into the TMDL. The highest water concentration of 5.02 ng/l is an extrapolated concentration using the modeling of mercury concentrations vs river mile. The highest actual measured concentration was 9.50 ng/l which may be an outlier but it would give a real margin of safety.

The other problem with the use of 5.02 ng/l as a margin of safety is that samples were collected during drought conditions. During a drought, mercury is accumulating on the land and it won't be in the water to be measured. The value extrapolated from drought-generated data would tend to be low and the 5.02 ng/l value is actually more like an average value, and does not supply a margin of safety to the calculations.

Frank Carl, 14501 Smith Road, Charlotte, North Carolina 28273, December 18, 2000

1.e.

COMMENT

The TMDL Load equation is not appropriately expressed in the TMDL.
Frank Carl, 14501 Smith Road, Charlotte, North Carolina 28273, December 18, 2000

1.f.

COMMENT

The calculation of the annual average load suffers from the same weakness as the water high concentration in that it was calculated from mercury measurements made in drought conditions and it

FEBRUARY 28, 2001

may be an underestimate. Using the equation for calculating the TMDL load, a higher current annual load would tend to increase the calculated TMDL load, and it would also tend to increase the amount of mercury that may have to be removed from the river before the river could attain designated use.

Frank Carl, 14501 Smith Road, Charlotte, North Carolina 28273, December 18, 2000

1.g.

COMMENT

There is no margin of safety calculated into the water quality target (WQT). This could be done by assigning the body weight of a 10 year old to the equation (estimate 30 kg rather than the 70 kg used).

Frank Carl, 14501 Smith Road, Charlotte, North Carolina 28273, December 18, 2000

1.h.

COMMENT

A margin of safety could be added to the WQT by using the figure of 10 million for the BAF instead of 4 million.

Frank Carl, 14501 Smith Road, Charlotte, North Carolina 28273, December 18, 2000

1.i.

COMMENT

A margin of safety could be added to the WQT by using mean value of the percentage of methylmercury in the mercury load in the river. In fact, it might be better to use the highest percentage of methylmercury as part of the total mercury load in the river as a margin of safety.

Frank Carl, 14501 Smith Road, Charlotte, North Carolina 28273, December 18, 2000

1.j.

COMMENT

The use of all of the suggested margins of safety in the WQT would yield a WQT too low to measure. The use of one of the factors would yield a WQT with a margin of safety and an attainable, enforceable target.

Frank Carl, 14501 Smith Road, Charlotte, North Carolina 28273, December 18, 2000

2.a.

COMMENT

Requested that EPA Region 4 provide written responses to each of his comments.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.b.

COMMENT

FEBRUARY 28, 2001

The proposed TMDL does not explain how South Carolina permittees will be expected to prove attainment of the mercury target at the point defined by EPA as the point of compliance. The commenter requested that EPA remove all requirements for South Carolina from the TMDL, except in the last paragraph of page 1. The commenter provided language to replace the last paragraph of page 1 in the first paragraph of page 1 of his comment letter.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.c.

COMMENT

EPA fails to acknowledge that South Carolina's standards are different from Georgia's and that EPA is improperly applying a Georgia standard to South Carolina. The commenter does not believe it is appropriate to include South Carolina in a TMDL being promulgated for Georgia. South Carolina should not be held to Georgia's water quality target (WQT) without being given the opportunity to administer its duly delegated water quality program. If South Carolina remains subject to the TMDL, EPA must give more deference and discretion to the State of South Carolina in the TMDL by stating that end-of-pipe limits can be calculated in a manner that would not raise the concentration of mercury in the middle of the river significantly above the WQT.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.d.

COMMENT

EPA has established an unrealistic three-year timeframe in expecting to know that there can be reductions from air sources. If there is not reasonable assurance of air source reductions in three years, point source dischargers should not be subject to a lower wasteload allocation.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.e.

COMMENT

If the point of compliance is the middle of the river, end-of-pipe permit limits of 2.83 ng/l cannot be established by this TMDL for South Carolina permittees. The commenter recommended addition of language to the second sentence of Section 10.2.3. SEE PAGE 2 OF THE WRITTEN COMMENT LETTER.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

FEBRUARY 28, 2001

2.f.

COMMENT

Applying 1% of the total allocation to NPDES dischargers because they constitute 1% of all sources is illogical. EPA should aggressively pursue reductions in air emissions as the most likely source for achieving the targeted reductions. Point source dischargers should be required to pursue mercury reduction programs, with the degree of aggressiveness proportional to the relative magnitude of loading. Liquid discharges should also monitor their releases on a regular basis.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.g.

COMMENT

EPA should input the expected and known reductions in air emissions in its models and project the reductions in concentrations in Savannah River fish and water to establish the expectations. Subsequent sampling of fish and water should be conducted and used.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.h.

COMMENT

The commenter recommended that EPA determine wasteload allocations to point source discharges as follows:

Current Annual Average Load to the Savannah River = 58.77 kilograms/year

Current Loading from Point Source Discharges = 1% = .5877 kilograms/year

The wasteload allocation should be reduced by 1% leaving 99% of the point source loading to existing sources which equals .5818 kilograms/year.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.i.

COMMENT

EPA should provide for protection from anti-backsliding rules, allowing point source dischargers to take advantage of TMDLs that will be later developed.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.j.

FEBRUARY 28, 2001

COMMENT

Regarding the timing of a Phase II TMDL, would the requirements of the 2004 revisions be implemented in 2008 when South Carolina NPDES permits again expire ? Would South Carolina NPDES facilities be required in Phase II to modify their permits to incorporate the new requirements contained therein ?

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.k.

COMMENT

The 2.83 ng/l mercury TMDL target is unattainable by current, commercially available, technology and should not be implemented. While more advanced treatment technologies are being developed and tested, production scale application is likely to be years away. Using large expenditures for wastewater treatment is not the most effective use of resources to achieve the goal of reducing mercury concentrations in fish.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.l.

COMMENT

The commenter has serious reservations with the establishment of criteria based on one sampling event. Strongly recommended that EPA conduct seasonal sampling over several years during both high and low stream flow rates so that a valid target criterion can be established that is based upon adequate data. In the meantime, NPDES permits should be written based upon existing procedures and water quality standards and revised as these procedures and standards are updated through the appropriate regulatory processes.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.m.

COMMENT

The water quality target (WQT) of 2.83 ng/l is not well founded. EPA fails to discuss what was sampled, methodologies used, sample accuracy, or statistical significance of the results of the July, and August-September sampling. These should be discussed in the TMDL or through reference to another document.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.n.

COMMENT

FEBRUARY 28, 2001

EPA should reconsider the wisdom behind using fish advisories in determining whether or not waters are impaired and including them on § 303(d) listings.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.o.

COMMENT

EPA should present an assessment of the magnitude of change that would be expected if lower discharge limitations were implemented, and the time course for those changes. It would be of merit to determine what factors influence the BAFs that have been computed in other areas to determine whether other approaches may be available for achieving the objective of reducing the mercury concentrations in fish.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.p.

COMMENT

EPA should verify that the TMDL models being used are properly and adequately validated for the area in which they are being applied. It is essential that the modeling work be fine tuned and validated where “rulemaking” is the objective.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.q.

COMMENT

EPA should add language at the appropriate locations throughout the TMDL document which reads “for dischargers with end-of-pipe permit limitations written under this TMDL, such a limit will be established as an annual average rather than a monthly average or daily maximum.”

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.r.

COMMENT

There is apparent contradiction in the TMDL about whether or not EPA is providing a specific wasteload allocation to facilities in South Carolina.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.s.

COMMENT

FEBRUARY 28, 2001

On page 8, paragraph 2, an annual priority pollutant scan is mentioned. If this requirement applies to publicly owned treatment works, then the language should be modified to reflect this fact.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.t.

COMMENT

There are no South Carolina laboratories certified to use the EPA Method 1631. Page 8, paragraph 2, and Section 10.2.2 should be modified to indicate that the requirement to use this method does not take affect in South Carolina until laboratories have obtained the appropriate certification.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.u.

COMMENT

Does EPA expect South Carolina to adopt EPA's new human health criterion along with Georgia ? If so, line 6 of paragraph 1 on page 9 should to indicate that.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.v.

COMMENT

The 8th line of paragraph 2 of page 13 should be changed to read "...samples were collected at the same general location as the water samples..."

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.w.

COMMENT

EPA calculated the safe level of mercury in fish tissue. However, the WQT was calculated using a different, lower consumption rate. The WQT calculated using the safe level value of fish consumption will prevent fish from exceeding 0.4 mg/kg, not 0.23 mg/kg.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.x.

COMMENT

EPA should elaborate on page 15 on what circumstances dictate that individual targets are needed for

FEBRUARY 28, 2001

individual segments.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.y.

COMMENT

The second line of page 15 should indicate that the WQT is expected to prevent the unacceptable bioaccumulation of mercury in fish tissue.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.z.

COMMENT

In Figure 1 of page 15, do the vertical lines represent “All fish” ? What does EPA really mean by “All fish” ? Are these points the average for selected sizes or the average for all fish at selected locations ?

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.aa.

COMMENT

On page 18, what is the meaning of “Reach File VI” and “Permit Compliance System” ? The text in the figure is not clear.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.bb.

COMMENT

The commenter recommends that EPA use a more representative cross section of fish actually being consumed to calculate this TMDL.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.cc.

COMMENT

Using the highest predicted water column concentration in the entire stretch of river may be overly conservative. The models have incorporated conservative factors which establish a margin of safety.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.dd.

FEBRUARY 28, 2001

COMMENT

EPA should take into account the microbial component of demethylation.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.ee.

COMMENT

The data collected for the one-time sampling event at the Savannah River Site occurred within 12 hours of a significant rain event in the middle of a drought season. Issues related to sampling after the rain event were not acknowledged in the calculations or data acquisition. It must be emphasized that sampling on the river at the SRS occurred after a significant rain event.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.ff.

COMMENT

In the Executive Summary, second dot, and on page 5, second dot, the highways listed probably should be 78/278.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.gg.

COMMENT

On page 8, lines 10 and 11 of Section 3.2 should read "...analytical techniques verified that all those facilities were discharging mercury."

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.hh.

COMMENT

There appears to be an extra comma in the 8th line, second full paragraph of page 9.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.ii.

COMMENT

On page 14, "RE" should be in italics in the equation for WQT. The definition of reference dose should cite mg/kg instead of mg.k.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

FEBRUARY 28, 2001

2.jj.

COMMENT

Does the analysis of Figure 1 of page 15 produce a statistically significant result ?

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.kk.

COMMENT

On page 19, the labels given to symbols on the legend should be changed to something more descriptive. The text in the figure is unclear.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.ll.

COMMENT

The legend of Figure 4 on page 20 has a symbol identified as “Reach File VI” that should be changed to something more descriptive.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.mm.

COMMENT

Figure 5 referred to on page 21 should be moved to the next page.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.nn.

COMMENT

On Figure 5 of page 24, the smallest text is very hard to read. Could the size of the entire figure be increased ?

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.oo.

COMMENT

Lines 5, 8, 9, and 14 of page 24 are confusing with the references to air point sources and nonpoint sources.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

FEBRUARY 28, 2001

2.pp.

COMMENT

In Table 3 of page 25, what does the asterisk mean in “80*” ? Is there supposed to be a footnote associated with it ?

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.qq.

COMMENT

The legend of Figure 6 on page 29 has a symbol identified as “Reach File VI” that should be changed to something more descriptive. The text in the figure is not clear.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.rr.

COMMENT

The legend of Figure 7 on page 30 has a symbol identified as “Reach File VI” that should be changed to something more descriptive. The text in the figure is not clear.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.ss.

COMMENT

The text inside the regions of the river that are blown up in Figure 8 of page 32 is not legible. The whole figure is fuzzy.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.tt.

COMMENT

The smallest text in Figure 9 of page 33 is not clear.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.uu.

COMMENT

The last sentence of page 34 should read “...affects...” instead of “...effects...”.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

FEBRUARY 28, 2001

2.vv.

COMMENT

In line 14 of page 44, the printed version shows a bold capital B after the words “3 components.” It is unclear what symbol was originally there.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.ww.

COMMENT

In the 5th line of text on page 46, what are the units for the dry deposition rate ? There appears to be a font problem.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.xx.

COMMENT

Figure 13 of page 49 presents total mercury in sediments along the river at “average annual flow.” EPA appears to have utilized these data in its modeling and load allocations. This raises questions concerning the adequacy of both the sampling and the modeling.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.yy.

COMMENT

Line 5 of page 51 should be reworded. EPA doesn’t want to reduce the 25.99 kg/yr, it wants to reduce the 58.77 kg/yr by eliminating 25.99 kg/yr.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

2.zz.

COMMENT

“Wasteload” is misspelled in the first sentence of Section 10.2.2 on page 54.

W. L. Payne, Environmental Protection Department, Westinghouse Savannah River Company LLC, Aiken, South Carolina 29808, January 17, 2001

3.a.

COMMENT

FEBRUARY 28, 2001

The TMDL is without technical merit and, if implemented, will cost taxpayers great sums of money that should not be spent.

H. Perry Holcomb, Ph. D., 1891 Green Forest Drive, North Augusta, South Carolina 29841-2173, January 18, 2001

3.b.

COMMENT

The water quality target (WQT) of 2.83 ppt is neither practical nor enforceable.

H. Perry Holcomb, Ph. D., 1891 Green Forest Drive, North Augusta, South Carolina 29841-2173, January 18, 2001

3.c.

COMMENT

There is no analytical laboratory in the United States that can measure mercury in water to within +/- 10 parts per quadrillion. How are currently permitted water discharges to the Savannah River going to be measured to the WQT ?

H. Perry Holcomb, Ph. D., 1891 Green Forest Drive, North Augusta, South Carolina 29841-2173, January 18, 2001

3.d.

COMMENT

How will a discharge permittee reach such low levels of mercury when current background concentrations in the central Savannah River valley are generally higher than the WQT ? These background levels are almost exclusively due to the presence of methyl mercury in the atmosphere.

H. Perry Holcomb, Ph. D., 1891 Green Forest Drive, North Augusta, South Carolina 29841-2173, January 18, 2001

3.e.

COMMENT

How much will this discharge limit cost the community wastewater permittees and their taxpayers in the long run ? The commenter envisions billions of dollars if the limit becomes a law.

H. Perry Holcomb, Ph. D., 1891 Green Forest Drive, North Augusta, South Carolina 29841-2173, January 18, 2001

3.f.

COMMENT

The commenter intends to contact Representative Lindsey Graham to request that he introduce legislation that prohibits contaminant concentration limits that cannot be accurately and precisely measured by at least ten commercial laboratories using the same analytical protocol and whose analytical services are available to all public and private concerns affected by the limits.

FEBRUARY 28, 2001

H. Perry Holcomb, Ph. D., 1891 Green Forest Drive, North Augusta, South Carolina 29841-2173, January 18, 2001

4.a.

COMMENT

EPA has used a flow rate of 114 MGD in calculating the mercury load for Citgo. This is incorrect - the average outfall flow from Citgo was 0.149 MGD for calendar year 1997; 0.151 MGD for calendar year 1998; 0.128 MGD for calendar year 1999; and 0.130 MGD for calendar year 2000.

The calculation of the current mercury load for Citgo is too high.

EPA should recheck these numbers for Citgo and other NPDES dischargers.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.b.

COMMENT

It is unclear why EPA did not include dischargers' flow information in the TMDL document and not just in the Administrative Record.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.c.

COMMENT

Citgo did not get adequate time to provide meaningful comments on the TMDL because the Administrative Record was made available only on January 8, 2001.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.d.

COMMENT

There is no scientific or legal basis for this TMDL and it should not have been proposed.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.e.

COMMENT

EPA has not demonstrated that Georgia's existing water quality standard is not protective of human health or the use of the river for fishing.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt

FEBRUARY 28, 2001

Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.f.

COMMENT

Without an exceedance of a water quality standard, there is no basis for listing a water.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.g.

COMMENT

Measurements of total and methyl mercury made in the water column of the Savannah River during EPA's sampling event were all well below the State of Georgia's water quality criterion of 12 ng/l.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.h.

COMMENT

EPA has acted improperly to invoke Georgia's narrative standard for toxic substances to derive a water quality target. The target is, in fact, a new water quality standard, the revision of which must follow the procedures outlined in the State's administrative procedures.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.i.

COMMENT

There is no legal basis for requiring mercury effluent reductions from NPDES point sources in this TMDL. EPA should allow point sources to continue discharging at their current effluent limits, rather than requiring them to select between a "criteria end of pipe" effluent limit or a mercury minimization program. EPA should assign load limits to dischargers rather than an end-of-pipe concentration.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.j.

COMMENT

EPA has incorrectly made use of the water quality target in suggesting an implementation strategy for load reductions under a TMDL. The assignment of an end-of-pipe criterion does not accomplish the objective of a TMDL to allocate load reductions to point sources.

For Citgo, this is an important point because evaporation of water used for cooling may tend to concentrate mercury in the effluent, although the discharged load may be no greater than the intake

FEBRUARY 28, 2001

load. Assigning a load, instead of concentration should resolve this issue.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.k.

COMMENT

Citgo should get credit for background mercury in the intake water.

The commenter urged EPA to follow the Bogue Chitto River mercury TMDL and assign loads to dischargers and allow for the subtraction of mercury loading from fresh water intakes.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.l.

COMMENT

Citgo combines stormwater and process water before discharging to the Savannah River. Background mercury may be present in stormwater. Citgo should be allowed credit for mercury already present in stormwater.

Further, Citgo recommends that mercury load in the stormwater not be included in the load allocation.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.m.

COMMENT

Industries discharging at the saline portion of the river should be allowed a higher water quality target because the potential for mercury methylation and bioaccumulation are significantly lower in estuarine waters as compared with fresh waters.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.n.

COMMENT

There are inconsistencies between the sampling and analysis plan for the river and the data presented in the TMDL and the Administrative Record. These have made it impossible to adequately comment on the TMDL.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

FEBRUARY 28, 2001

4.o.

COMMENT

It is not clear whether water column mercury concentrations were measured in filtered or unfiltered samples. Table 5 of the TMDL indicates that the majority of the samples were unfiltered. If these samples were unfiltered, then calculating BAFs from these samples represents an egregious contravention of normal and accepted scientific procedures.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.p.

COMMENT

Citgo finds that EPA has not followed its recently finalized methodology to derive the water quality target for the river. EPA has calculated the WQT by using a fish consumption rate with a bioaccumulation factor measured in the river for only largemouth bass and other trophic level four fish, leading to an unduly low WQT. The finalized methodology recommends that BAFs be determined and applied on a trophic level-specific basis. Citgo has estimated the species-weighted BAF to be 1,650,000 L/kg. Using this BAF in the WQT formula results in a WQT of 6.9 ng/l.

The data in the TMDL document clearly shows that trophic level four fish, including largemouth bass, chain pickerel, and bowfin do not represent a major portion of the fish size that is caught and kept by anglers and consumed as a food source. Largemouth bass and chain pickerel make up only 10% of the harvest by weight. The three species make up less than 15% by weight of the total harvest.

The Agency must agree that trophic level four fish are not the only fish caught and consumed from the Savannah, and that different fish species have different propensities for bioaccumulating mercury.

EPA should re-evaluate its assumptions and calculations, specifically with regard to the adequacy of its calculated BAFs and the applicability of these BAFs to all fish caught and consumed from the Savannah River.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.q.

COMMENT

EPA has used an inappropriately large and unquantified margin of safety leading to an unrealistically low WQT and exaggerated estimates of required load reductions. The commenter believes the MOS is, at a minimum, on the order of 240%, and could be larger. EPA must quantify the implicit MOS in the TMDL. If EPA calculates a WQT with a more reasonable MOS, the Agency will find that current water column concentrations are already at or below levels of concern and that no load reductions from

FEBRUARY 28, 2001

point sources are required.

The application of a fish consumption rate of 17.5 g/day to trophic level four fish has caused EPA to introduce an MOS into the calculation of the WQT of approximately 2.4 (140%).

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.r.

COMMENT

EPA must establish the need for a TMDL in the watershed. EPA has not demonstrated that the fishing use of the river is impaired. EPA does not have the authority to establish a TMDL for a waterbody that is not exceeding the State's numerical water quality standard. EPA must justify its technical and legal bases for the establishment of this TMDL.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.s.

COMMENT

EPA should reevaluate its results with regard to the fish consumption guidelines issued by the Georgia EPD.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.t.

COMMENT

EPA must document its models and modeling analysis better in order to justify them.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.u.

COMMENT

EPA has not demonstrated that exceedance of the Georgia fish consumption guideline of 0.23 mg/kg of mercury in fish tissue, which is the basis for § 303(d) listing, constitutes an impaired use of the waterbody.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.v.

COMMENT

It is not the case, as EPA has stated, that Georgia's Rules and Regulations for Water Quality Control

FEBRUARY 28, 2001

do not include a numeric water quality standard for total mercury based on the protection of human health.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.w.

COMMENT

Region 4 is creating gross inconsistencies in mercury water quality criteria for the protection of human health by fish consumption across states in the Region. Cited are: mercury TMDLs for the Escatawpa and Bogue Chitto Rivers in Mississippi; approved mercury water quality criterion of 150 ng/l in the State of South Carolina.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.x.

COMMENT

There is no scientific basis for the regulation of mercury concentration in fish based on total mercury in the water column.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.y.

COMMENT

There is no relationship between total and methyl mercury in the water column.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.z.

COMMENT

There is no demonstrable relationship between methyl mercury in the water column and mercury in fish.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.aa.

COMMENT

Almost all methyl mercury concentrations in fish would appear to be much more dependent of methylation rates and the structure of the food web than on total mercury concentrations in the water column.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

FEBRUARY 28, 2001

4.bb.

COMMENT

Citgo is concerned that if EPA establishes an overly conservative WQT, that anti-backsliding provisions in the Clean Water Act will prevent the future relaxation of such criteria or load allocations.
T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.cc.

COMMENT

The TMDL states that the entire drainage of the watershed is approximately 9.3 million square kilometers. This is clearly not the case. The actual size is about 27,000 km².
T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.dd.

COMMENT

A statement on page 18 indicates that the watershed was divided into 32 subwatersheds. Only 31 are shown on Table 8.
T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.ee.

COMMENT

Information in the Administrative Record has been updated much later than the time when the TMDL was released for public comment.
T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.ff.

COMMENT

There are a number of inconsistencies existing between the TMDL document and spreadsheets on the CD.
T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.gg.

COMMENT

On CD:\Savannah\Savannah Hg TMDL\Spreadsheets\Hg Data Update, on the Water Quality T sheet

FEBRUARY 28, 2001

the “fraction” methyl mercury column is actually percent methyl mercury and the WQT column is erroneously lower by a factor of 100, as are the last two columns.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.hh.

COMMENT

On CD:\Savannah\Savannah Hg TMDL\Spreadsheets\Hg Data Update, on the Facility Data sheet, the flow information for some facilities is completely erroneous. EPA should recheck these values. It is not clear why EPA did not include this information in the TMDL document.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.ii.

COMMENT

On CD:\Savannah\Savannah Hg TMDL\Spreadsheets\Hg Data Update, the soils data for the study area from the Sediment-Soil sheet should be in the TMDL report.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.jj.

COMMENT

Concerning CD:\Savannah\Savannah Hg TMDL\Spreadsheets\Savannah Watershed, the calculations are very recent. The commenter is very concerned about the discrepancies between the model results in the Administrative Record and the information in the TMDL document.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.kk.

COMMENT

Concerning CD:\Savannah\Savannah Hg TMDL\Spreadsheets\Savannah Watershed, at the end of the spreadsheet, EPA has multiplied the annual total load number by a factor of 2.5. Without adequate documentation, it is difficult to decode this multiplier.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.ll.

COMMENT

Concerning CD:\Savannah\Savannah Hg TMDL\Spreadsheets\Savannah Watershed, it is unclear how EPA calculates the contribution from NPDES sources (0.097% of the total load). This is different from

FEBRUARY 28, 2001

the 1% value assigned in the TMDL document and 3% discussed in the November 8, 2000 public meeting.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.mm.

COMMENT

Concerning CD:\Savannah\Savannah Hg TMDL\Spreadsheets\Savannah WWTP, the information about QA/QC flags the concern about the detection limit/quantitation limit for methyl mercury. The spreadsheet indicates 0.11 ng/l methyl mercury concentrations are below detection limits. The reporting of extremely low methyl mercury concentrations in the TMDL document has resulted in extremely high BAFs and an unreasonably low WQT.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.nn.

COMMENT

Concerning CD:\Savannah\WASP\WASP_Ave, there is a concern that the WASP model cannot predict actual field data for mercury and methyl mercury in sediments and water. This is of great importance because mercury concentrations in the lower segments are used to calculate atmospheric mercury load reductions.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.oo.

COMMENT

The WCS model has some serious shortcomings - the model overestimates and misrepresents the loadings of mercury from the watershed resulting from post-industrial deposition of atmospheric mercury.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.pp.

COMMENT

The complexity of the fate of mercury in soils, which may strongly influence the loading of mercury from the watershed, is unaccounted for by the simple approach of the soil mercury solid fraction of equilibrium.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

FEBRUARY 28, 2001

4.qq.

COMMENT

There are several problems with the term “leaching rate constant.” Over an annual period, the water balance across upper layers of the soil is very close to zero, so the term should effectively be zero. No leaching would be predicted.

In order to predict events of infiltration, it is normally necessary to model a daily time scale or less.

There is no discussion in the documentation as to how infiltration is actually calculated. Neither is there a description of how evapotranspiration is calculated. As presented, the term double accounts infiltration.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.rr.

COMMENT

In the model, apparently it is assumed that mercury which moves out of the upper layer of soil is lost to the system. This may not be a valid assumption.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.ss.

COMMENT

The model apparently does not model groundwater nor account for pre-industrial mercury that may be released by weathering in deeper soils and transported to nearby streams in shallow surficial aquifers.

This may be a substantial oversight.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.tt.

COMMENT

The documentation presents no basis for the approach to calculating the reduction loss, the selection of soil base reduction rate, or soil reduction depth.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.uu.

COMMENT

There is no basis presented in the model for the calculation of the sediment delivery ratio or pollutant enrichment factor used in the equation to calculate erosion loss rate.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

FEBRUARY 28, 2001

4.vv.

COMMENT

There is a concern with the resultant soil concentration equation in the treatment of the initial (pre-industrial) soil concentration. In the equation and model, the contribution of weathering and the release of mercury to the soil profile are overlooked entirely. This is a major oversight and serious flaw in the WCS model.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.ww.

COMMENT

It is a major flaw in the model for the assumption to be made that all erosion is sheet erosion of the top layers of soil. This assumption will lead to gross overestimation of post-industrial mercury loads from watersheds.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.xx.

COMMENT

The model assumes no losses of mercury accumulating on impervious surfaces. This may not be a realistic treatment of the processes involved.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.yy.

COMMENT

The dry and wet deposition rates appear to be too high for the Savannah River watershed.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.zz.

COMMENT

The watershed depth of incorporation seems very low.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.aaa.

COMMENT

The initial (pre-industrial) soil concentration seems unreasonably low.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt

FEBRUARY 28, 2001

Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.bbb.

COMMENT

The simulated total mercury concentration, watershed, no-till, row crops transitional and evergreen forest seem high.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.ccc.

COMMENT

The commenter does not see how the model could possibly be run without some sort of calibration.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.ddd.

COMMENT

EPA data would tend to suggest that there is very little post-industrial impact of mercury deposition to these soils; even though their model and TMDL suggests that ALL of the loadings to the river are from post-industrial sources.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.eee.

COMMENT

EPA's sampling and analysis plan for the Savannah states that soil samples are to be collected from 0-4 inches in depth. If simulations are for the top 1 cm of soil, then the commenter fails to see how this data could be used to calibrate the model.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.fff.

COMMENT

EPA did not adequately notice its intent to collect fish tissue, water, soil, and sediment samples for mercury. Neither did EPA give adequate time for the public to review or comment on its sampling plan.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

FEBRUARY 28, 2001

4.ggg.

COMMENT

Soil data should be presented in the TMDL and EPA should show how it is used. EPA should provide descriptions of where and how these samples were obtained.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.hhh.

COMMENT

Pore water in sediments data is never presented in the TMDL and is apparently not in the Administrative Record.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.iii.

COMMENT

Data for suspended solids and total organic carbon is not presented in the TMDL document and could not be found in the Administrative Record.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.jjj.

COMMENT

Data for sulfate, sulfide, nutrients, percent moisture in sediments, pore water sulfides, pH, conductivity, dissolved oxygen, and temperature is not presented in the TMDL document and could not be found in the Administrative Record.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.kkk.

COMMENT

Citgo is concerned that methyl mercury concentrations much lower than the practical quantitation limit are reported in Table 5.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.lll.

COMMENT

Citgo is concerned about the quality of EPA's data. None of the QA/QC data specified in EPA's

FEBRUARY 28, 2001

sampling and analysis plan is provided in the TMDL document. This data has yet to be made available.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.mmm.

COMMENT

EPA has been inconsistent in its use of atmospheric deposition rates between its TMDLs for the South Georgia watersheds and the Savannah River watershed. What is the justification for using RELMAP data in the Savannah River TMDL instead of the MDN data ?

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.nnn.

COMMENT

EPA has inappropriately calibrated its models used to simulate mercury fate and transport in the Savannah River watershed and in doing so have overestimated load reductions required to achieve the WQT.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.ooo.

COMMENT

EPA underestimated mercury loads to the Savannah River from atmospheric and terrestrial sources by simulation under a drought scenario. There are three sources of this underestimation: wet deposition that may have occurred during the period; mercury entering the river in base flow; and mercury entering from upstream via the overflow from Hartwell Dam. EPA may have overlooked input from base flow that would occur under drought conditions and the mercury load that this base flow might carry. It is not clear whether EPA used estimates of mercury loading from upstream inputs in the drought simulations.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4.ppp.

COMMENT

In calculating the load reduction from nonpoint sources, EPA utilizes the formula:

$$\text{TMDL Load} = \frac{\text{WQT} \times \text{Current Average Annual Load}}{\quad}$$

FEBRUARY 28, 2001

Highest Segment Concentration

The commenter takes exception to this approach for several reasons: EPA is using the highest predicted value from the modeled segments; the designation of segments in the model is based on physical properties of the stream channel which have no correspondence to the segments of the river that on the § 303(d) list for Georgia; and EPA should not base the load reduction on any one segment at all, if fish truly move throughout the watershed, since fish would be exposed to the full range of concentrations occurring in the river.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

4. qqq.

COMMENT

The commenter contends that the bioaccumulation in fish is not driven by the input load to the system, but rather the portion of the input load that is retained in the system.

T. W. Farrior, Jr., Manager, Safety, Environmental and Quality Control, Savannah Refinery, Citgo Asphalt Refining Company, Post Office Box 1881, Savannah, Georgia 31402-1881, January 19, 2001

5.a.

COMMENT

The commenter suggested that a Phase I TMDL would:

1. Monitor for five years the affect of air deposition reductions expected under current and future Clean Air Act regulations.
2. EPA and the States would defer point sources as de minimus dischargers of mercury and defer permit modifications until such time as it is determined that wasteload allocations would have an environmental benefit.

James C. Taylor, Mill Manager, Beech Island Mill, Kimberly-Clark, 1420 Sand Bar Ferry Road, Beech Island, South Carolina 29841, January 19, 2001

5.b.

COMMENT

The commenter suggested that a Phase II TMDL would:

1. Determine whether further mercury reductions are needed to attain the objectives of the Clean Water Act and identify whether air deposition controls have been successful, if further air regulations are appropriate, and/or if wasteload allocations are necessary.

FEBRUARY 28, 2001

2. If further reductions in mercury concentrations are not expected from further air deposition controls, and wasteload allocations can be demonstrated to accomplish the necessary reductions, initiate a wasteload allocation program as follows:
 - a. One round of mercury testing of NPDES permittee discharges using Method 1631.
 - b. Permittees with discharges exceeding the water quality standard would initiate a self-implemented mercury minimization program.
 - c. After one year, another round of mercury testing would be required of these discharges to measure the effectiveness of the mercury minimization program.
 - d. Permittees that still exceed the water quality standard would have their permits modified to include a permit limit for mercury that requires compliance with a water quality based effluent limit that reflects feasible/achievable removals.

James C. Taylor, Mill Manager, Beech Island Mill, Kimberly-Clark, 1420 Sand Bar Ferry Road, Beech Island, South Carolina 29841, January 19, 2001

6.a.

COMMENT

Provided additional testing results, including water intake from the Savannah River. These results indicate that International Paper - Augusta Mill is not a net discharger of mercury.

EPA must make consideration for intake levels of mercury when determining the “major” NPDES dischargers of mercury.

Gordon Service, Environmental Manager, Augusta Mill, International Paper, 4278 Mike Padgett Highway, Post Office Box 1425, Augusta, Georgia 30903-1425, January 19, 2001

7.a.

COMMENT

It would be worth discussing in the TMDL if the choice of an annual average load is related to the state standards, which have only a chronic standard and no acute standard for mercury.

Kesler T. Roberts, Georgia Legal Watch, 264 North Jackson Street, Athens, Georgia 30606, January 22, 2001

7.b.

COMMENT

It is difficult to compare and identify the changes from the first version due to altered formats, choice of information included, and lack of discussion of the significant revisions. The commenter suggested that EPA provide some documentation of the changes from prior versions. This documentation could be

FEBRUARY 28, 2001

made part of the public notice or be stated within the TMDL.

Kesler T. Roberts, Georgia Legal Watch, 264 North Jackson Street, Athens, Georgia 30606, January 22, 2001

7.c.

COMMENT

There is limited permit information, or WLAs to individual point sources. This causes question of whether this TMDL can even be considered a completed TMDL as it does not set forth minimum components required by the regulations.

Kesler T. Roberts, Georgia Legal Watch, 264 North Jackson Street, Athens, Georgia 30606, January 22, 2001

7.d.

COMMENT

Essentially no information is given as to which point sources have mercury limits, violations, or the potential to contribute, nor is information given as to what contributions have been from documented sources. The commenter suggested that all known sources (include Olin, DOE, and municipalities with mercury pretreatment concerns) in both states be included in the TMDL and that those with mercury limits or significant potential to contribute be identified, with data given for past discharges and compliance.

For these sources, water quality based limits based on the TMDL must be imposed. This may include adequately limited compliance schedules where needed and allowed. Failure to impose water quality based effluent limits consistent with a TMDL once developed, is inconsistent with regulations.

This helps keep pressure on the process and encourages the point sources to have a greater stake in solving the nonpoint problems.

Kesler T. Roberts, Georgia Legal Watch, 264 North Jackson Street, Athens, Georgia 30606, January 22, 2001

7.e.

COMMENT

It is inappropriate to give mercury dischargers an option of how to be limited. There may be no available mercury capacity to allocate in the source's area.

Kesler T. Roberts, Georgia Legal Watch, 264 North Jackson Street, Athens, Georgia 30606, January 22, 2001

7.f.

COMMENT

Changes in the annual load are not adequately explained or justified. The choice of an average annual flow is unclear since this would include flood flows that might skew the results.

Differences in units, end results, and errors should be reconciled.

Kesler T. Roberts, Georgia Legal Watch, 264 North Jackson Street, Athens, Georgia 30606, January 22, 2001

FEBRUARY 28, 2001

7.g.

COMMENT

The TMDL fails to include South Carolina sources and allocations. The decision is not justified and is not in keeping with how rivers work. It seems an obligation of EPA to deal with both states in this TMDL. There is no reasonable assurance that South Carolina will follow suit and use the same target and methods.

Kesler T. Roberts, Georgia Legal Watch, 264 North Jackson Street, Athens, Georgia 30606, January 22, 2001

7.h.

COMMENT

It is unacceptable to use an implicit margin of safety. There is considerable uncertainty in the early phase of development, especially since South Carolina allocations are not included. The commenter urged that an explicit MOS always be used.

Kesler T. Roberts, Georgia Legal Watch, 264 North Jackson Street, Athens, Georgia 30606, January 22, 2001

7.i.

COMMENT

There is the potential for unaccounted for, hot spots and greater uncertainty as a result of doing a river-wide TMDL. This does not seem to make adequate use of stream data showing higher mercury values and, perhaps, greater limitations in some locations.

Kesler T. Roberts, Georgia Legal Watch, 264 North Jackson Street, Athens, Georgia 30606, January 22, 2001

8.a.

COMMENT

EPA should not list and develop TMDLs for waters, or require States to do so, based on the sole fact that the State has issued fish consumption advisories for the waters. EPA's requirement that this listing be done by the States is improper. A waterbody should only be listed for fish contamination if there is objective evidence of a violation of a water quality standard that relates to the pollutant present in fish.

Reasons why the existence of a fish advisory should not automatically lead to a § 303(d) listing are: there has been no public input to the fish advisory; there often is no formal criteria for data quantity, quality, or validity behind the fish advisory issuance; in many cases, the fish advisory is issued just for informational purposes, to trigger further investigation, and/or as a precaution.

The State should do a careful analysis of the information supporting the advisory, along with other relevant information, in order to make a listing decision.

FEBRUARY 28, 2001

New EPA guidance (October 24, 2000) indicates that the Savannah River should not have been listed. The risk parameters used in the fish consumption guidelines are more stringent than the parameters that would have been used by the State in setting water quality standards.

Beth A. Harvey (Fredric P. Andes), Barnes & Thornburg, January 22, 2001

8.b.

COMMENT

EPA should not list and develop TMDLs for waters, or require States to do so, if those waters are impaired solely or predominantly by air deposition. It is beyond EPA's authority to take this action.

Congress did not contemplate, and the statutory language does not support, the use of § 303(d) to address pollutant sources that are not directly regulated under the Clean Water Act, such as air emission sources. Congress' intent was regulating facilities located along a waterbody that discharge substances directly into the waterbody from their wastewater. There is no discussion in the legislative history related to regulation under § 303(d) of waters impaired by air deposition to waterbodies.

EPA's listing methodology that indicates that waterbodies are to listed under § 303(d)(1) even if they have no point source discharges is an incorrect interpretation that has no support in either the law or the legislative history.

Waters impaired by air deposition only simply do not belong under the listing and TMDL development requirements of § 303(d)(1). EPA should address those waters under other existing mechanisms which may include the Clean Air Act.

Beth A. Harvey (Fredric P. Andes), Barnes & Thornburg, January 22, 2001

8.c.

COMMENT

EPA should not develop its own TMDL target and thereby overrule a validly promulgated State water quality standard. The 2.83 ng/l value is inconsistent with and far more stringent than Georgia's and EPA's water quality criterion for mercury.

Nothing in EPA's water quality standard rules or the Clean Water Act authorizes EPA to supersede the existing State standard and replace it with another value. EPA has failed to follow the procedure of § 303(c)(4) and must use Georgia's legitimately derived, and appropriately EPA-approved, existing criterion of 12 ng/l.

Beth A. Harvey (Fredric P. Andes), Barnes & Thornburg, January 22, 2001

8.d.

COMMENT

EPA maintains that the 12 ng/l numeric criterion is not intended to protect human health. This statement

FEBRUARY 28, 2001

is simply not accurate in several important respects. The 12 ng/l criterion was based on human health considerations (using FDA action level - derived from human health considerations, and a bioaccumulation factor).

Beth A. Harvey (Fredric P. Andes), Barnes & Thornburg, January 22, 2001

8.e.

COMMENT

EPA's conclusion, after collecting site-specific data, that the 12 ng/l criterion must not be adequate, evidenced by elevated fish tissue levels of mercury, does not logically follow. Concentrations of mercury in fish could exist for many reasons that are unrelated to the current presence of mercury in the water column.

Beth A. Harvey (Fredric P. Andes), Barnes & Thornburg, January 22, 2001

8.f.

COMMENT

There is no reason to determine that if the State has issued a guidance for fish consumption that the "fishable" use of that water has been entirely lost. This position is legally and technically unsupported.

Beth A. Harvey (Fredric P. Andes), Barnes & Thornburg, January 22, 2001

8.g.

COMMENT

The proposed TMDL targets developed in the proposed TMDL use an invalid scientific methodology and assumptions. The commenter continues to be concerned that EPA used the bioaccumulation factor (BAF) concept that was included in the Agency's human health criteria methodology. The November 3, 2000 Human Health Methodology was finalized without EPA's having made use of the substantial revisions called for by commenters and a peer review panel. The commenter does not believe that this methodology should be used, including in developing targets for TMDLs, until further scientific review is completed and appropriate revisions are made.

Beth A. Harvey (Fredric P. Andes), Barnes & Thornburg, January 22, 2001

8.h.

COMMENT

EPA did not examine site-specific information in developing the fish consumption rates that used in its target calculation. The result was a set of highly skewed calculated fish consumption rates, which do not adequately represent the amount of fish that people actually consume.

Fish consumption studies, such as data compiled by NPD Research, Inc., on a one-month basis, would provide more defensible consumption rates for use in deriving criteria. The commenter maintains that the NPD 30-day study should be used in preference to the shorter studies selected by EPA.

FEBRUARY 28, 2001

Beth A. Harvey (Fredric P. Andes), Barnes & Thornburg, January 22, 2001

8.i.

COMMENT

EPA cannot simply impose onerous obligations on the point sources which do not result in attainment of standards in the waterbody and claim that the resulting permit limits constitute a valid TMDL. If EPA cannot find a mix of loading reductions that results in attainment of standards, then there is no way to develop and implement a valid TMDL at all, since a TMDL must result in attainment.

Beth A. Harvey (Fredric P. Andes), Barnes & Thornburg, January 22, 2001

8.j.

COMMENT

A phased TMDL would take into account expected loading reductions from nonpoint sources, such as air emissions, in determining the reductions (if any) that are needed from point sources. In the Savannah River situation, a phased TMDL would result in the conclusion that point sources can stay at existing discharge levels, or possibly even obtain increased limits as long as those limits are consistent with the overall plan for attainment.

Beth A. Harvey (Fredric P. Andes), Barnes & Thornburg, January 22, 2001

8.k.

COMMENT

EPA cannot pretend that end-of-pipe limits will result in attainment of standards.

Beth A. Harvey (Fredric P. Andes), Barnes & Thornburg, January 22, 2001

8.l.

COMMENT

Allocations requiring criteria to be met as end-of-pipe limits, with no mixing zone allowed, are completely improper, on legal, technical, and policy grounds. Applying these limits is the same as not allowing a mixing zone. A ban on mixing zones in this circumstance is entirely improper.

Beth A. Harvey (Fredric P. Andes), Barnes & Thornburg, January 22, 2001

8.m.

COMMENT

Congress did not intend to eliminate mixing zones for listed pollutants. There is no support for the proposed end-of-pipe limits in the legislative history.

Beth A. Harvey (Fredric P. Andes), Barnes & Thornburg, January 22, 2001

8.n.

COMMENT

FEBRUARY 28, 2001

EPA rules do not authorize the elimination of mixing zones for listed pollutants.

Beth A. Harvey (Fredric P. Andes), Barnes & Thornburg, January 22, 2001

8.o.

COMMENT

The “no mixing zone” policy is inconsistent with the States’ broad discretion to implement water quality standards.

Beth A. Harvey (Fredric P. Andes), Barnes & Thornburg, January 22, 2001

8.p.

COMMENT

Compliance with water quality standards at the outfall would impose enormous additional costs which, in turn, could result in lost jobs, increased sewer charges and taxes, and stunt economic growth. The environmental benefits would be negligible.

Beth A. Harvey (Fredric P. Andes), Barnes & Thornburg, January 22, 2001

8.q.

COMMENT

There is an unfair and illegal burden of water quality standard compliance on point source dischargers, which contribute an extraordinarily small fraction of the pollutant.

Beth A. Harvey (Fredric P. Andes), Barnes & Thornburg, January 22, 2001

8.r .

COMMENT

The inclusion of requirements for minimization plans in permits as permit conditions is beyond EPA’s legal authority to require.

Beth A. Harvey (Fredric P. Andes), Barnes & Thornburg, January 22, 2001

8.s.

COMMENT

Any requirement that the point source achieve possible and feasible reductions, such as those required by minimization plans, when the TMDL itself will include loading reductions from other sources that will, by themselves, result in attainment of standards, is simply inconsistent with the basic notion of a TMDL. Those reductions are not needed to achieve the TMDL’s goal, and therefore have no legal basis within the TMDL process.

Beth A. Harvey (Fredric P. Andes), Barnes & Thornburg, January 22, 2001

8.t.

COMMENT

FEBRUARY 28, 2001

The commenter would like to work with EPA to seek out ways to promote the efforts of point sources to evaluate and solve water quality problems, without imposing them as permit requirements.

Beth A. Harvey (Fredric P. Andes), Barnes & Thornburg, January 22, 2001

8.u.

COMMENT

If EPA insists on including minimization plans in NPDES permits, dischargers should have control over the development and implementation of their site-specific minimization plans. The States should not approve or disapprove the steps or plans. States should not impose enforceable limits based on the plans in NPDES permits.

Beth A. Harvey (Fredric P. Andes), Barnes & Thornburg, January 22, 2001

9.a.

COMMENT

The commenter is in agreement with, fully supports, and incorporates Georgia Power Company's comments.

Ann Marie Stack, Bouhan, Williams & Levy LLP, The Armstrong House, 447 Bull Street, Post Office Box 2139, Savannah, Georgia 31402-2139, January 22, 2001

9.b.

COMMENT

EPA intends to apply a 2.83 ppt standard to Savannah River dischargers that do not add mercury to the waterbody. The Clean Water Act only allows EPA to regulate the addition of pollutants.

Therefore, EPA's proposed rule goes beyond EPA's statutory authority.

Ann Marie Stack, Bouhan, Williams & Levy LLP, The Armstrong House, 447 Bull Street, Post Office Box 2139, Savannah, Georgia 31402-2139, January 22, 2001

9.c.

COMMENT

EPA lacks the statutory authority to promulgate a federal water quality standard for a state that is more stringent than the existing federal standard which currently is 50 ppt.

Ann Marie Stack, Bouhan, Williams & Levy LLP, The Armstrong House, 447 Bull Street, Post Office Box 2139, Savannah, Georgia 31402-2139, January 22, 2001

9.d.

COMMENT

Georgia's 12 ppt standard has been approved by EPA and EPA has itself utilized the 12 ppt standard (in Alabama, for example). The 12 ppt standard is utilized in other states as meeting human health uses.

Ann Marie Stack, Bouhan, Williams & Levy LLP, The Armstrong House, 447 Bull Street, Post Office Box 2139,

FEBRUARY 28, 2001

Savannah, Georgia 31402-2139, January 22, 2001

9.e.

COMMENT

EPA's use of a numerical translator of a narrative standard is subject to the same administrative requirements of public notice and comment as a numerical standard. EPA has not followed these administrative procedures for the proposed TMDL.

Ann Marie Stack, Bouhan, Williams & Levy LLP, The Armstrong House, 447 Bull Street, Post Office Box 2139, Savannah, Georgia 31402-2139, January 22, 2001

9.f.

COMMENT

EPA's exclusion of South Carolina point sources based on the fact that the middle of the river is the state boundary renders the TMDL arbitrary, as the boundary certainly does not inhibit mercury transport nor fish migration across the midpoint of the river.

Ann Marie Stack, Bouhan, Williams & Levy LLP, The Armstrong House, 447 Bull Street, Post Office Box 2139, Savannah, Georgia 31402-2139, January 22, 2001

10.a.

COMMENT

There is no scientific or legal basis for this TMDL and it should not have been proposed. EPA must re-evaluate its WQT and proposed load reductions.

Michael E. Wilder, Water Resources Workgroup Chair, and Terry D. Snell, GA PE, Chair, Georgia Industry Environmental Coalition, 3200 Town Point Drive, NW, Suite 100, Kennesaw, Georgia 30144, January 22, 2001

10.b.

COMMENT

The State of Georgia's ambient water quality criterion for mercury is human health based. EPA has not demonstrated that this is not protective of human health.

Michael E. Wilder, Water Resources Workgroup Chair, and Terry D. Snell, GA PE, Chair, Georgia Industry Environmental Coalition, 3200 Town Point Drive, NW, Suite 100, Kennesaw, Georgia 30144, January 22, 2001

10.c.

COMMENT

EPA has acted improperly to invoke Georgia's narrative standard for toxic substances to derive a water quality target (WQT). EPA does not have the authority to establish a TMDL for a waterbody that is not exceeding a numeric water quality standard.

Michael E. Wilder, Water Resources Workgroup Chair, and Terry D. Snell, GA PE, Chair, Georgia Industry Environmental Coalition, 3200 Town Point Drive, NW, Suite 100, Kennesaw, Georgia 30144, January 22, 2001

FEBRUARY 28, 2001

10.d.

COMMENT

The WQT is a new water quality standard, the revision of which must follow the procedures outlined in the State's administrative procedures.

Michael E. Wilder, Water Resources Workgroup Chair, and Terry D. Snell, GA PE, Chair, Georgia Industry Environmental Coalition, 3200 Town Point Drive, NW, Suite 100, Kennesaw, Georgia 30144, January 22, 2001

10.e.

COMMENT

EPA has not demonstrated that the 12 ng/l State standard is not protective of the use of the river for fishing.

Michael E. Wilder, Water Resources Workgroup Chair, and Terry D. Snell, GA PE, Chair, Georgia Industry Environmental Coalition, 3200 Town Point Drive, NW, Suite 100, Kennesaw, Georgia 30144, January 22, 2001

10.f.

COMMENT

Without an exceedance of a water quality standard, there is no basis for listing a waterbody under the Clean Water Act provisions. Ambient measurements of mercury in the water column were all well below the State's water quality criterion.

Michael E. Wilder, Water Resources Workgroup Chair, and Terry D. Snell, GA PE, Chair, Georgia Industry Environmental Coalition, 3200 Town Point Drive, NW, Suite 100, Kennesaw, Georgia 30144, January 22, 2001

10.g.

COMMENT

EPA has not demonstrated that the river is impaired because of human consumption of fish tissue containing mercury and that its justification for the TMDL is presumptive only.

Michael E. Wilder, Water Resources Workgroup Chair, and Terry D. Snell, GA PE, Chair, Georgia Industry Environmental Coalition, 3200 Town Point Drive, NW, Suite 100, Kennesaw, Georgia 30144, January 22, 2001

10.h.

COMMENT

There is no legal basis for requiring mercury effluent reductions from NPDES point sources in this TMDL. EPA should allow point sources to continue discharging at their current effluent limits, rather than requiring them to select between a "criteria end-of-pipe" effluent limit or a mercury minimization program. The objective of a TMDL is to allocate load reductions to pollutant sources and the assignment of an end-of-pipe criterion does not accomplish this.

Michael E. Wilder, Water Resources Workgroup Chair, and Terry D. Snell, GA PE, Chair, Georgia Industry Environmental Coalition, 3200 Town Point Drive, NW, Suite 100, Kennesaw, Georgia 30144, January 22, 2001

10.i.

FEBRUARY 28, 2001

COMMENT

The commenter suggested that EPA has incorrectly made use of the WQT in suggesting an implementation strategy for load reductions under a TMDL.

Michael E. Wilder, Water Resources Workgroup Chair, and Terry D. Snell, GA PE, Chair, Georgia Industry Environmental Coalition, 3200 Town Point Drive, NW, Suite 100, Kennesaw, Georgia 30144, January 22, 2001

10.j.

COMMENT

All dischargers which take water from the river for whatever use, and make no net additions of mercury, should be allowed to discharge a load equivalent to the intake load.

Michael E. Wilder, Water Resources Workgroup Chair, and Terry D. Snell, GA PE, Chair, Georgia Industry Environmental Coalition, 3200 Town Point Drive, NW, Suite 100, Kennesaw, Georgia 30144, January 22, 2001

10.k.

COMMENT

The commenter urged EPA to follow the Bogue Chitto River mercury TMDL and assign loads to dischargers and allow for the subtraction of mercury loading from fresh water intakes.

Michael E. Wilder, Water Resources Workgroup Chair, and Terry D. Snell, GA PE, Chair, Georgia Industry Environmental Coalition, 3200 Town Point Drive, NW, Suite 100, Kennesaw, Georgia 30144, January 22, 2001

10.l.

COMMENT

There are inconsistencies between the sampling and analysis plan for the river and the data presented in the TMDL and the record. Inadequacies in the TMDL and the record have made it impossible to adequately comment on this TMDL.

Michael E. Wilder, Water Resources Workgroup Chair, and Terry D. Snell, GA PE, Chair, Georgia Industry Environmental Coalition, 3200 Town Point Drive, NW, Suite 100, Kennesaw, Georgia 30144, January 22, 2001

10.m.

COMMENT

EPA has not followed its recently finalized methodology to derive the WQT. The methodology recommends that bioaccumulation factors be determined and applied on a trophic level-specific basis. Region 4 has used a fish consumption rate of 17.5 g/day together with the BAF measured in the river for only largemouth bass and other trophic level 4 fish, leading to an unduly low WQT.

Michael E. Wilder, Water Resources Workgroup Chair, and Terry D. Snell, GA PE, Chair, Georgia Industry Environmental Coalition, 3200 Town Point Drive, NW, Suite 100, Kennesaw, Georgia 30144, January 22, 2001

10.n.

COMMENT

EPA continues to make use of an excessive and unquantified margin of safety. EPA states that the

FEBRUARY 28, 2001

MOS was incorporated implicitly by selecting the highest predicted water column concentration of mercury in the entire stretch of the river. Actually, this is only one of the ways that EPA incorporated an MOS. EPA has far exceeded the degree of conservatism provided by its final methodology for deriving ambient water quality criteria based on human health.

EPA should quantify the implicit MOS. If EPA calculates a WQT with more reasonable MOS, the Agency will find that current water column concentrations are already at or below levels of concern; and that no load reductions from point or nonpoint sources are required.

Michael E. Wilder, Water Resources Workgroup Chair, and Terry D. Snell, GA PE, Chair, Georgia Industry Environmental Coalition, 3200 Town Point Drive, NW, Suite 100, Kennesaw, Georgia 30144, January 22, 2001

10.o.

COMMENT

The quality of the data collected by EPA and the way in which EPA has used the limited data to calculate the WQT and required load reductions are concerns.

Michael E. Wilder, Water Resources Workgroup Chair, and Terry D. Snell, GA PE, Chair, Georgia Industry Environmental Coalition, 3200 Town Point Drive, NW, Suite 100, Kennesaw, Georgia 30144, January 22, 2001

10.p.

COMMENT

EPA should re-evaluate its assumptions and calculations with regard to the adequacy of its calculated BAFs and the applicability of these BAFs to all fish caught and consumed from the Savannah.

Michael E. Wilder, Water Resources Workgroup Chair, and Terry D. Snell, GA PE, Chair, Georgia Industry Environmental Coalition, 3200 Town Point Drive, NW, Suite 100, Kennesaw, Georgia 30144, January 22, 2001

10.q.

COMMENT

EPA should re-evaluate its results with regard to the fish consumption guidelines issued by the State of Georgia.

Michael E. Wilder, Water Resources Workgroup Chair, and Terry D. Snell, GA PE, Chair, Georgia Industry Environmental Coalition, 3200 Town Point Drive, NW, Suite 100, Kennesaw, Georgia 30144, January 22, 2001

10.r.

COMMENT

EPA should better document its models and modeling analysis in order to justify them.

Michael E. Wilder, Water Resources Workgroup Chair, and Terry D. Snell, GA PE, Chair, Georgia Industry Environmental Coalition, 3200 Town Point Drive, NW, Suite 100, Kennesaw, Georgia 30144, January 22, 2001

10.s.

COMMENT

FEBRUARY 28, 2001

EPA should assign load limits to dischargers rather than end-of-pipe concentrations.

Michael E. Wilder, Water Resources Workgroup Chair, and Terry D. Snell, GA PE, Chair, Georgia Industry Environmental Coalition, 3200 Town Point Drive, NW, Suite 100, Kennesaw, Georgia 30144, January 22, 2001

11.a.

COMMENT

The TMDL program may be inadequate for addressing mercury impairment in the middle and lower Savannah River watershed. If the TMDL process continues, EPA is encouraged to repropose a TMDL that complies with the provisions of the Clean Water Act, the Administrative Procedure Act, and current scientific knowledge.

Charles H. Tisdale, Jr., King & Spalding, 191 Peachtree Street, Atlanta, Georgia 30303-1763, January 22, 2001

11.b.

COMMENT

EPA is unlawfully ignoring the State's 12 ng/l standard in the TMDL. EPA is establishing a new standard, the water quality target, without observing statutorily prescribed procedures. Without proper modification of the current State water quality standard, there is questionable basis for a TMDL.

EPA should not avoid statutorily mandated procedures for establishing water quality standards by simply renaming the concept underlying its present action (establishing a water quality target).

Charles H. Tisdale, Jr., King & Spalding, 191 Peachtree Street, Atlanta, Georgia 30303-1763, January 22, 2001

11.c.

COMMENT

The fish consumption advisories are not duly promulgated water quality standards. Use of these advisories to establish impairment is of questionable scientific and legal validity.

Charles H. Tisdale, Jr., King & Spalding, 191 Peachtree Street, Atlanta, Georgia 30303-1763, January 22, 2001

11.d.

COMMENT

The fish consumption advisories were established with more conservative risk assessment parameters than the 12 ng/l standard.

Charles H. Tisdale, Jr., King & Spalding, 191 Peachtree Street, Atlanta, Georgia 30303-1763, January 22, 2001

11.e.

COMMENT

EPA may be applying its recent guidance on the use of fish consumption advisories in § 303(d) listing decisions inconsistently by not allowing Georgia the discretion to list waters based on the more conservative fish consumption advisories.

FEBRUARY 28, 2001

Charles H. Tisdale, Jr., King & Spalding, 191 Peachtree Street, Atlanta, Georgia 30303-1763, January 22, 2001

11.f.

COMMENT

The TMDL methodology has potentially erroneous modeling assumptions, inadequate sampling, overestimated rates of fish tissue consumption, and overly general BAF application. This may lead to arbitrary and capricious conclusions.

Charles H. Tisdale, Jr., King & Spalding, 191 Peachtree Street, Atlanta, Georgia 30303-1763, January 22, 2001

11.g.

COMMENT

EPA's allocation strategy appears to contradict EPA's statements in the TMDL document. An example is the statement that "...such elimination or stringent reductions of mercury are not necessary to meet the TMDL since reasonable assurance is provided that air sources of mercury will achieve their load allocation." EPA should reconsider its allocation strategy, perhaps adopting a modified version of the strategies employed by Regions 2 and 6.

Charles H. Tisdale, Jr., King & Spalding, 191 Peachtree Street, Atlanta, Georgia 30303-1763, January 22, 2001

11.h.

COMMENT

EPA should not supersede Georgia's authority to establish water quality-based effluent limitations. EPA lacks the authority to establish individual effluent limitations for point sources regulated under authorized State NPDES programs. Georgia should be allowed to implement the allocation strategy within its authorized NPDES program.

Charles H. Tisdale, Jr., King & Spalding, 191 Peachtree Street, Atlanta, Georgia 30303-1763, January 22, 2001

11.i.

COMMENT

EPA should ensure that more stringent limitations on point source discharges are reasonably expected to contribute to the attainment of water quality standards and that they are truly necessary.

Charles H. Tisdale, Jr., King & Spalding, 191 Peachtree Street, Atlanta, Georgia 30303-1763, January 22, 2001

11.j.

COMMENT

EPA is encouraged to provide additional guidance regarding the alternative mercury characterization and minimization program.

Concerning Option 2, what is an appropriate NPDES facility ? Are all facilities holding NPDES permits qualified to elect this option ? What do mercury characterization and minimization plans entail ?

FEBRUARY 28, 2001

How long would sources currently without mercury permit limits have to employ Method 1631 to establish their current mercury discharge amounts ? How will feasible/achievable mercury effluent limits be determined ? What weight will be given to economic considerations and how will technical feasibility be determined ? Will EPA provide guidance on these issues ?

Charles H. Tisdale, Jr., King & Spalding, 191 Peachtree Street, Atlanta, Georgia 30303-1763, January 22, 2001

11.k.

COMMENT

EPA data indicate that water column mercury levels are in compliance with the applicable water quality standard and that Georgia's water quality goals are met.

Charles H. Tisdale, Jr., King & Spalding, 191 Peachtree Street, Atlanta, Georgia 30303-1763, January 22, 2001

11.l.

COMMENT

EPA should allow Georgia to defer listing the Savannah River waters until Georgia has promulgated a methylmercury fish tissue criterion.

Charles H. Tisdale, Jr., King & Spalding, 191 Peachtree Street, Atlanta, Georgia 30303-1763, January 22, 2001

11.m.

COMMENT

Current studies indicate that mercury sediment and suspended particular matter concentrations are better predictors of fish tissue concentrations, than are mercury water column concentrations.

Charles H. Tisdale, Jr., King & Spalding, 191 Peachtree Street, Atlanta, Georgia 30303-1763, January 22, 2001

11.n.

COMMENT

The BAF incorporates an additional margin of safety through the failure to use a segment-specific BAF.

Charles H. Tisdale, Jr., King & Spalding, 191 Peachtree Street, Atlanta, Georgia 30303-1763, January 22, 2001

11.o.

COMMENT

Current studies indicate that mercury levels vary temporally and spatially. EPA's sampling should account for this variation.

Charles H. Tisdale, Jr., King & Spalding, 191 Peachtree Street, Atlanta, Georgia 30303-1763, January 22, 2001

11.p.

COMMENT

EPA should develop fish consumption rates specific to the middle and lower Savannah River watershed.

FEBRUARY 28, 2001

Charles H. Tisdale, Jr., King & Spalding, 191 Peachtree Street, Atlanta, Georgia 30303-1763, January 22, 2001

11.q.

COMMENT

Region 4 should freeze wasteload allocations at present discharge levels during Phase I and, if necessary, assign aggregate wasteload allocations and assist Georgia with establishing a mercury characterization and minimization program during Phase II.

Charles H. Tisdale, Jr., King & Spalding, 191 Peachtree Street, Atlanta, Georgia 30303-1763, January 22, 2001

11.r.

COMMENT

The Agency should provide proper notice of the proposed effluent limitation and conduct the required public hearing.

Charles H. Tisdale, Jr., King & Spalding, 191 Peachtree Street, Atlanta, Georgia 30303-1763, January 22, 2001

11.s.

COMMENT

Should EPA require point sources to implement effluent limits below current discharge levels during Phase I, it will result in additional economic burdens without commensurate environmental benefits. There are discharges who generate no mercury when operating but who inevitably discharge mercury above the WQT due to influent mercury concentrations.

Charles H. Tisdale, Jr., King & Spalding, 191 Peachtree Street, Atlanta, Georgia 30303-1763, January 22, 2001

11.t.

COMMENT

EPA should demonstrate that the stringent limits on point source discharges are justified given the corresponding benefits and economic costs.

Charles H. Tisdale, Jr., King & Spalding, 191 Peachtree Street, Atlanta, Georgia 30303-1763, January 22, 2001

12.a.

COMMENT

The TMDL process is ill-suited for effectively managing mercury in the nation's waterbodies. If EPA continues to use the TMDL process, it needs to pursue that approach in a flexible and iterative manner that ensures appropriate information will be developed and analyzed before significant regulatory decisions, like the need for load reductions on point sources, are made.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

FEBRUARY 28, 2001

12.b.

COMMENT

Many of EPA's methodologies and assumptions are not technically valid, are otherwise arbitrary and capricious, and are not supported by the Clean Water Act, the Administrative Procedure Act, or EPA's regulations.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

12.c.

COMMENT

The site-specific data gathered in August and September 2000 may not be representative of average long-term conditions.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

12.d.

COMMENT

EPA inappropriately imposes new requirements on point sources in the first phase, even while admitting that their contribution to the loading is no more than 1% and that completely eliminating point sources would produce little benefit in the Savannah River quality.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

12.e.

COMMENT

EPA's TMDL would impose what may be cost prohibitive and technologically infeasible mercury reduction burdens on point sources, without first establishing that those load reductions actually will produce a discernible reduction in the impairment alleged by EPA. The need for point source load reduction is premature.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

12.f.

COMMENT

EPA has no authority to establish load and wasteload allocations as part of the TMDL. The Clean Water Act establishes a TMDL as an assimilative load and not the allocations of that load. Establishing allocations as part of the TMDL exceeds EPA's statutory authority.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

FEBRUARY 28, 2001

12.g.

COMMENT

It was inappropriate for EPA to expand the scope of a TMDL in its new TMDL rule (2000) and it is inappropriate to do so in the context of an individual TMDL.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

12.h.

COMMENT

EPA's establishment of allocations in this TMDL violates the current Congressional prohibition on federal expenditures to implement the 2000 TMDL regulations.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

12.i.

COMMENT

EPA's reliance on a water quality standard it derived in an ad hoc manner without satisfying federal or state procedural requirements is legally indefensible. TMDLs are suppose to be used to achieve water quality standards. EPA has decided what mercury level in the water column would ensure that fish tissue levels would be acceptable. The ad hoc water quality standard EPA established for the water column is called a water quality target. EPA never explicitly states that its WQT is a water quality standard yet there is no doubt about EPA's intent.

EPA cannot unilaterally decide, without making the appropriate determination and then following the procedures prescribed by law, that Georgia's standard is not adequate for a particular TMDL. Failure to identify or develop a valid water quality standard means the TMDL is legally flawed.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

12.j.

COMMENT

Region 4 has been inconsistent in its approach to states' mercury water quality criteria. Cited are: mercury TMDLs for the Escatawpa and Bogue Chitto Rivers in Mississippi; approved mercury water quality criterion of 150 ng/l in the State of South Carolina. The broad inconsistency makes no sense from either a scientific or legal perspective.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

FEBRUARY 28, 2001

12.k.

COMMENT

EPA's calculation of the WQT is technically flawed and arbitrary and capricious. The calculation is based on erroneous and unvalidated assumptions. EPA's underlying basis for the TMDL is oversimplistic, has not been validated for application to the Savannah River watershed, and does not agree with current knowledge on the aquatic cycling of mercury.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

12.l.

COMMENT

EPA's equation assumes a linear proportional relationship between mercury in the water and mercury in fish. The commenter points out that this is an erroneous assumption. EPA's own data indicate that there is no proportional relationship between the mercury levels in sediments and the level of mercury in the water column. There is very little evidence that mercury levels in the water determine the resultant fish tissue concentration. EPA's data indicates that there is no correlation between the fish tissue levels and mercury levels in the water column.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

12.m.

COMMENT

A water column target for mercury has no demonstrable value with respect to the protection of either environmental or human health.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

12.n.

COMMENT

EPA presents no analysis on the relationship between levels of mercury in water, sediment, and fish.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

12.o.

COMMENT

A database matrix consisting of measured levels of mercury in water and fish is essential. The data base have to capture both spatial and temporal variability in order to confirm the assumption that a change in water concentration resulted in a proportional change in fish tissue level.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

FEBRUARY 28, 2001

12.p.

COMMENT

The assumption of a direct proportional linkage in water column and fish tissue mercury is clearly inconsistent with the current understanding of mercury cycling and bioaccumulation in fresh waters. The usage of the proportional equation provides no assurance whatsoever that reductions in water mercury levels to the WQT will, in fact, result in the target fish tissue concentration.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

12.q.

COMMENT

EPA's use of a BAF to quantify the magnitude of bioaccumulation in a waterbody is not valid, and that deficiency further undermines the assumption of a strong linkage between mercury levels in water and fish.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

12.r.

COMMENT

EPA presents no information on field-derived BAF values for largemouth bass over time in the TMDL. EPA's inability to test the assumption that BAF values do not change over time invalidates the application of a BAF in the TMDL.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

12.s.

COMMENT

Because the BAF is the ratio of two independent variables, the underlying assumption that a waterbody with a higher BAF contains fish with higher mercury levels is not always true.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

12.t.

COMMENT

Field-measured BAFs are preferable to calculated BAFs; however, even field-measured BAFs must be determined using an appropriate sampling design.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

FEBRUARY 28, 2001

12.u.

COMMENT

Region 4 has failed to follow EPA's 2000 methodology and technical guidance on the determination of empirical (field-measured) BAFs. The methodology recommends that BAFs be determined and applied on a trophic level-specific basis. Region 4 has used only trophic level four fish and associated BAFs in its analysis.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

12.v.

COMMENT

EPA's reliance on a single, one-time sampling event for calculation of a BAF value, a WQT, and model parametrization is unacceptable. The WQT should not have been calculated at all, because a one-time sampling event is unacceptable. EPA does not discuss how much more data will be acceptable to adequately assess mercury loadings.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

12.w.

COMMENT

EPA ignored the well-documented observation that levels of mercury in a single waterbody vary both in time and space. EPA's failure to capture any temporal and spatial variability results in a WQT having an unacceptable degree of uncertainty. This uncertainty leads to overconservatism in establishing the target.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

12.x.

COMMENT

The commenter is concerned about the methylmercury water column data because the values are inconsistent with the stated detection limit. If there is a different detection limit for methylmercury as opposed to mercury, this information should be included in the TMDL.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

12.y.

COMMENT

EPA's characterization of mercury cycling is incomplete, and some stated facts on mercury are erroneous. In Figure 5 of the TMDL, the input of cinnabar to the formation of Hg (II) is an uncommon event and should be deleted. Demethylation is not shown in the figure. The rate of demethylation can

FEBRUARY 28, 2001

be greater than the rate of methylation in some waterbodies during certain times.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

12.z.

COMMENT

The commenter is concerned with EPA's reliance on RELMAP to determine atmospheric deposition. EPA does not explain how the shortcomings identified in the South Georgia TMDLs, which led to the use of other sources, have been overcome to justify the use of RELMAP in the Savannah River TMDL.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

12.aa.

COMMENT

EPA fails to establish a correlation between air deposition reduction and fish tissue level reduction.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

12.bb.

COMMENT

Methyl and total mercury are NOT in equilibrium in all media. EPA cannot premise its model on an assumption that present day sediment concentrations and associated methylation of mercury can be directly correlated with present day deposition rates.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

12.cc.

COMMENT

There is no basis for concluding that a single methylation rate is appropriate. There is no basis for concluding that a milligram of reduction of atmospheric mercury has the same potential to reduce methylmercury in fish as a milligram reduction in some other loading.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

12.dd.

COMMENT

The issues related to atmospheric deposition should not be dealt with under the TMDL program, but

FEBRUARY 28, 2001

rather under programs, including, as appropriate, the Clean Air Act. The most appropriate action is to develop a different type of phased TMDL than the one proposed.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

12.ee.

COMMENT

EPA should not impose reductions on point sources until at least Phase II when there is adequate data indicating the need for reductions.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

12.ff.

COMMENT

EPA cannot pretend that end-of-pipe limits equal to the criteria will result in attainment of standards; whether attainment will be reached can only be determined by assessing possible reductions from other, much larger sources. Stringent limits on point sources that are small contributors simply do not fit into the TMDL program.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

12.gg.

COMMENT

Applying water quality criteria to the end of the discharge is the same as not allowing a mixing zone. A ban on mixing zones in this circumstance is entirely improper. Congress did not intend to eliminate mixing zones for listed pollutants. Congress did not require EPA or the States to truncate the Clean Water Act's regulatory scheme and impose harsh, even punitive, burdens on dischargers pending completion of the TMDL process.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

12.hh.

COMMENT

EPA must establish that point source load reductions are necessary to achieve a discernible reduction in the impairment.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

FEBRUARY 28, 2001

12.ii.

COMMENT

The statute does not require that an effluent limitation must assure immediate results, or EPA could not allow NPDES compliance schedules for existing sources that are subject to load reductions.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

12.jj.

COMMENT

Under the Clean Water Act, a State has the discretion to determine that mixing zones are appropriate for a particular discharge to an impaired water.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

12.kk.

COMMENT

EPA rules do not authorize elimination of mixing zones for listed pollutants. EPA has previously refused to prohibit States from applying mixing zones as a means of achieving water quality standards. EPA Region 4 cannot now do what EPA Headquarters has previously refused to do. To do so would be inconsistent with other provisions in the Agency's rules.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

12.ll.

COMMENT

The "no mixing zone" policy is inconsistent with the States' broad discretion to implement water quality standards. The removal of mixing zones would prohibit affected States from deciding the most practical and environmentally sound results. More permit limits would require dischargers to meet water quality criteria at the end of pipe. Enormous additional costs could result in lost jobs, increased sewer charges and taxes, and stunt economic growth. Improvement in water quality would be negligible.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

12.mm.

COMMENT

Placing requirements for monitoring and minimization plans within NPDES permits as permit conditions is a concern. It is questioned whether EPA has the legal authority to impose such permit conditions.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

FEBRUARY 28, 2001

12.nn.

COMMENT

If EPA insists on including minimization plans, dischargers should have control over the development and implementation of their site-specific minimization plans. States should not have approval or disapproval of the steps or plan. States should not impose enforceable limits based on the plans in the NPDES permits.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

12.oo.

COMMENT

Phase I of the TMDL should concentrate on the further identification and quantification of all local, regional, and global sources of atmospherically derived mercury loadings. There should not be wasteload allocations established at this time. EPA should focus on the collection of data to determine if point sources are contributing meaningfully to the impairment.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

12.pp.

COMMENT

Voluntary efforts of point sources to reduce mercury levels in their discharges should be encouraged.

Robin J. Reash, Chair, Water Quality Committee, Utility Water Act Group, 1900 K Street, N.W., Washington, D.C. 20006, January 22, 2001

13.a.

COMMENT

The TMDL does not comply with the requirements of the Federal Administrative Procedure Act, the Clean Water Act, or Georgia's Administrative Procedure Act.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.b.

COMMENT

The TMDL is arbitrary, capricious, an abuse of discretion, and otherwise not in accordance with the law.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.c.

FEBRUARY 28, 2001

COMMENT

EPA has failed to follow specific administrative procedures, including procedures required prior to rejecting a state's water quality standard and inserting in its place a narrative translator.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.d.

COMMENT

EPA is arbitrary and capricious in using methods and applying standards to the mercury issue that are inconsistent with established guidelines and other methods and standards applied by EPA.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.e.

COMMENT

EPA has exceeded its statutory authority in establishing in the TMDL permit conditions in a state which has been authorized to implement the NPDES program before the state has prepared draft permits to implement TMDL requirements.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.f.

COMMENT

The tight time deadlines established by the Court do not excuse EPA from its obligations to adequately support its determinations with an administrative record based on sound scientific information and to provide the public with due process.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.g.

COMMENT

Any revisions to Georgia's water quality criteria should be undertaken by the State of Georgia rather than EPA within a TMDL.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.h.

COMMENT

EPA is on record as approving or itself establishing several different and inconsistent mercury standards. These include Georgia's 12 ppt standard; an EPA 51 ppt standard; approval of a set of

FEBRUARY 28, 2001

assumptions for mercury TMDLs in Mississippi in June and December 2000; the standard in EPA's January 2001 Federal Register publication; and the proposed 2.83 ppt standard of the Savannah River TMDL.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.i.

COMMENT

EPA action provides no certainty to the regulated community that needs reliable and consistent information for planning purposes.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.j.

COMMENT

The proposed TMDL for the Savannah River is arbitrary and capricious in being much more stringent than other mercury TMDLs recently approved by EPA. In accepting the Mississippi mercury TMDLs for Bogue Chitto River and Escatawpa River, EPA accepted the numeric standard it now rejects for Georgia, approved a different TMDL development methodology, and approved the exclusion of permittees that did not add mercury but only passed it through intakes back into the river.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.k.

COMMENT

In accepting the Mississippi mercury TMDLs for Bogue Chitto River and Escatawpa River, EPA accepted the FDA standard 1.0 mg/kg methylmercury in fish tissue, but rejected it in the Savannah River TMDL.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.l.

COMMENT

Only 2 of the 16 sample locations in the Savannah would be considered impaired under the 1.0 mg/kg methylmercury standard. If EPA were consistent in its Georgia and Mississippi actions, there would not even be mercury TMDLs for five of the seven segments for which a TMDL is being developed.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.m.

FEBRUARY 28, 2001

COMMENT

Dischargers that do not add mercury cannot be legally required to remove it.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.n.

COMMENT

The wide gap in approaches strongly suggests an arbitrary and capricious approach by EPA, and also raises issues regarding due process and equal protection.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.o.

COMMENT

The proposed TMDL is arbitrary and capricious in using standards and methods inconsistent with and more stringent than those established and approved by EPA.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.p.

COMMENT

In promulgating a TMDL with a WQT of 2.83 ppt while a federal criteria of 51 ppt has been established by EPA, EPA is applying a more stringent standard than is required by the Clean Water Act, in violation of the Act. This standard is arbitrary and capricious in that it rejects methods and criteria that EPA has established and found acceptable in numerous determinations preceding and following the proposed TMDL.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.q.

COMMENT

When EPA established a 51 ppt human health criteria for mercury for fish consumption, that criteria and the methods became binding upon EPA.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.r.

COMMENT

The translator of 0.23 mg/kg methylmercury fish consumption guideline never went through rulemaking procedures.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

FEBRUARY 28, 2001

13.s.

COMMENT

EPA's failure to consistently apply one methodology and set of assumptions is arbitrary, capricious, and an abuse of discretion.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.t.

COMMENT

Exclusion of loadings from South Carolina is arbitrary, capricious, and an abuse of discretion.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.u.

COMMENT

The administrative record contains information from South Carolina from which mercury loading could be assessed.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.v.

COMMENT

EPA has cited no legal authority for its position, and its rationale that the midpoint of the Savannah is the state line is irrelevant to the development of the TMDL. The midpoint does not form any boundary to mercury transport, to water, or to the fish which EPA has used as the basis for this TMDL, and its use as a geographic boundary for the TMDL is arbitrary and capricious.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.w.

COMMENT

Inadequate and geographically limited sampling renders the TMDL arbitrary and capricious. One time sampling is subject to seasonal, annual, or other bias (such as drought and ultra-clean sampling requirements) and does not provide sufficient temporal information for the purpose of regulation. This is an inadequate study for any scientific purpose, particularly where the result is a regulatory one that could cost millions of dollars or more to implement.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.x.

FEBRUARY 28, 2001

COMMENT

EPA has not investigated or considered other possible reasons for methylmercury bioaccumulation in fish, such as trophic issues, behavioral or other issues.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.y.

COMMENT

EPA's unsupported assumption that mercury is in the effluent of all point source dischargers in the basin is arbitrary and capricious.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.z.

COMMENT

The administrative record contains no information regarding mercury in the majority of the dischargers' effluent.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.aa.

COMMENT

The Clean Water Act does not provide authority to require permittees who do not add mercury through their discharge to have a mercury effluent limitation.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.bb.

COMMENT

EPA cannot broadly require monitoring for mercury by a permittee except as required in the context of an application for issuance or renewal of an NPDES permit, if applicable, or where the permitting authority, in this case Georgia EPD, believes that the monitoring is necessary to assure compliance with permit limitations.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.cc.

COMMENT

FEBRUARY 28, 2001

EPA failed to follow requisite administrative procedures to promulgate water quality standards. The proposed TMDL for mercury in effect revises Georgia's water quality criteria without following the procedures and statutory requirements.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.dd.

COMMENT

Georgia's existing numeric mercury criterion was approved by EPA as a human health based criterion. It was approved as protective of all designated uses, without any exception.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.ee.

COMMENT

EPA has repeatedly affirmed the validity of Georgia's mercury standard as protective of human health in official agency determinations. In order to deviate from those determinations, EPA would have to take official action rescinding or superceding these previous determinations.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.ff.

COMMENT

Georgia's standard followed federal guidelines and is several times more protective than federal criteria promulgated by EPA in 1998.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.gg.

COMMENT

Authorized states, not EPA, are responsible for setting water quality standards except in a few narrow contexts. Georgia EPD should address any needed changes in the water quality criteria for mercury. Until EPD is given an opportunity to do so, EPA should not act. If EPA action becomes necessary, EPA should propose and promulgate any new water quality criteria through appropriate rulemaking.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.hh.

COMMENT

Translators of narrative water quality standards must be promulgated in the same manner as a water

FEBRUARY 28, 2001

quality standard. EPA has stated, in its 1994 Water Quality Standards Handbook, 2nd Edition, and in the January 8, 2001 Water Quality Criteria for Methylmercury, that this is the case. The procedures used for this TMDL must be publicly noticed and approved as a water quality standard.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.ii.

COMMENT

The proposed TMDL is at best premature and should be withdrawn.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.jj.

COMMENT

Inorganic or total mercury is not the appropriate pollutant for the purpose of protection of public health.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.kk.

COMMENT

EPA is statutorily barred from establishing the water quality based effluent limits set forth in the TMDL. The CWA and 40 CFR Part 130 do not authorize EPA to establish individual effluent limits when establishing TMDLs. EPA cannot establish effluent limits for permits in Georgia except in the case of an objection to a draft Georgia permit or by withdrawing Georgia's NPDES authorization pursuant to § 402.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.ll.

COMMENT

The establishment of a WQT for point source dischargers is not appropriate. The 2.83 ppt WQT is in effect a water quality based effluent limitation which is governed by § 302 of the CWA.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.mm.

COMMENT

Water quality based effluent limits are not authorized because 99% of the water quality problem is identified as atmospheric deposition, and because EPA has determined that even total elimination of point source discharges of mercury to the Savannah would not be reasonably expected to contribute to attainment.

FEBRUARY 28, 2001

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.nn.

COMMENT

The commenter encourages EPA to set the load reduction without specifying concentration based targets or limits to allow Georgia EPD to make allocation decisions based upon the regulatory burdens, expenses, and local conditions.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.oo.

COMMENT

NPDES permit holders which intake cooling water cannot be subjected to regulation based upon pollutants in intake water.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.pp.

COMMENT

EPA should modify the TMDL to exclude any facility which intakes water and does not add pollutants to the waterbody and should provide a credit for mercury in the intake water if additional mercury is discharged.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.qq.

COMMENT

There is no scientific or legal basis for this TMDL and it should not have been proposed.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.rr.

COMMENT

EPA has not demonstrated that Georgia's existing water quality standard of 12 ng/l is not protective of human health or the use of the river for fishing.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

FEBRUARY 28, 2001

13.ss.

COMMENT

Without an exceedance of a water quality standard, there is no basis for listing a waterbody under the provisions of the Clean Water Act.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.tt.

COMMENT

Measurements of total and methyl mercury made in the water column of the Savannah River during EPA's sampling event were all below Georgia's water quality criterion of 12 ng/l.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.uu.

COMMENT

The State of Georgia's ambient water quality criterion for mercury is human health based. EPA has acted improperly in using a non-promulgated translator to interpret Georgia's narrative standard for toxic substances to derive a water quality target (WQT). This WQT is a new water quality standard, the revision of which must follow the procedures outlined in the State's administrative procedures.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.vv.

COMMENT

EPA has not demonstrated that the river is impaired because of human consumption of fish tissue containing mercury. The current levels of mercury in fish tissue do not constitute a health risk to human consumers and do not constitute an impairment of the designated use of the water.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.ww.

COMMENT

Current levels of mercury in fish tissue do not constitute a health risk to human consumers and do not constitute an impairment of the designated use of the water.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.xx.

FEBRUARY 28, 2001

COMMENT

The Savannah River is not impaired and it should be removed from Georgia's § 303(d) list, a TMDL is not needed, and no load reductions from either point or nonpoint sources are required.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.yy.

COMMENT

EPA has not addressed previously identified problem of appropriateness and inconsistent application of water quality standards.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.zz.

COMMENT

EPA has not addressed previously identified problem of use of an inappropriately large and unquantified margin of safety leading to an unrealistically low WQT and exaggerated estimates of required load reductions.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.aaa.

COMMENT

There is a concern about implementation of wasteload allocations to point sources and for permit conditions for NPDES facilities in Georgia.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.bbb.

COMMENT

There is a concern about errors and lack of adequate documentation for the derivation of the TMDL.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.ccc.

COMMENT

There is a concern about inconsistencies between EPA's sampling and analysis plan and the data presented in the TMDL document.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

FEBRUARY 28, 2001

13.ddd.

COMMENT

There is a concern with the misapplication of the methodology to derive ambient water quality criteria for human health protection.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.eee.

COMMENT

There is a concern about inconsistent use of atmospheric deposition data.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

3.fff.

COMMENT

There is a concern about the lack of agreement between EPA's model simulations and observed data.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.ggg.

COMMENT

There is a concern about the overly conservative interpretation of model results leading to an exaggerated estimate of load reductions required to achieve water quality targets.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.hhh.

COMMENT

EPA should allow point sources to continue discharging at their current effluent limits, rather than requiring them to select between a "criteria end of pipe" effluent limit or a mercury minimization program. EPA should re-evaluate the prescribed actions for point source dischargers.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.iii.

COMMENT

EPA has incorrectly made use of the water quality target in suggesting an implementation strategy for load reductions under a TMDL. The assignment of an end-of-pipe criterion does not accomplish the objective of a TMDL to allocate load reductions to point sources.

FEBRUARY 28, 2001

If a facility increases its flow, it could actually increase its load without ever violating the end-of-pipe criterion. Or the converse.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.jjj.

COMMENT

All permittees that take water from the river should be allowed to return a load, equivalent to the intake load, back to the river.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.kkk.

COMMENT

EPA should follow suit with the Bogue Chitto River mercury TMDL and similarly address the issues of end-of-pipe criterion and intake credit in the TMDL document for the Savannah River.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.lll.

COMMENT

There are inconsistencies between the sampling and analysis plan for the river and the data presented in the TMDL and the Administrative Record. These have made it impossible to adequately comment on the TMDL.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.mmm.

COMMENT

It is not clear whether water column mercury concentrations were measured in filtered or unfiltered samples. Table 5 of the TMDL indicates that the majority of the samples were unfiltered. If these samples were unfiltered, then calculating BAFs from these samples represents an egregious contravention of normal and accepted scientific procedures.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.nnn.

COMMENT

EPA has not followed its recently finalized methodology to derive the water quality target for the river. EPA has calculated the WQT by using a fish consumption rate with a bioaccumulation factor measured

FEBRUARY 28, 2001

in the river for only largemouth bass and other trophic level four fish, leading to an unduly low WQT. The finalized methodology recommends that BAFs be determined and applied on a trophic level-specific basis. The commenter has estimated the species-weighted BAF to be 1,650,000 L/kg. Using this BAF in the WQT formula results in a WQT of 6.9 ng/l.

This WQT is above most of the ambient concentrations recently measured in the Savannah. This analysis provides further evidence that the Savannah River is not impaired for fishing.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.ooo.

COMMENT

EPA has been inconsistent in its use of atmospheric deposition rates between its TMDLs for the South Georgia watersheds and the Savannah River watershed. The Agency dismissed RELMAP deposition estimates in the South Georgia TMDLs and used them for the Savannah - this is a concern.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.ppp.

COMMENT

EPA has inappropriately calibrated its models used to simulate mercury fate and transport in the Savannah River watershed and in doing so has overestimated load reductions required to achieve the WQT.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.qqq.

COMMENT

The commenter takes exception to EPA's approach to estimating load reductions based on interpretation of its modeling results.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.rrr.

COMMENT

EPA uses the highest predicted value from the modeled segments. The commenter concluded that the simulated average flow concentrations are too high, which lead to an overly conservative estimate of the required load reduction.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

FEBRUARY 28, 2001

13.sss.

COMMENT

The use of the single highest concentration in a segment to calculate the load reduction is arbitrary. While the commenter agrees that the listed segment from Ebenezer Creek to the Tide Gate likely has the highest water column mercury and fish tissue concentrations along the main stem, this segment corresponds to roughly three model segments. A more reasonable value to use in the TMDL load calculation is the average concentration in the three segments under average flow conditions.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.ttt.

COMMENT

EPA indicates that MOS is incorporated implicitly by selecting the highest predicted water column concentration of mercury in the entire stretch of the river. This statement is incorrect and misleading because this is only ONE way that EPA has incorporated an MOS into the TMDL. Also used are: incorporation of a factor of 10 in the reference dose; use of potentially biased data to calculate BAFs; sampling and calculation of BAFs from only trophic level four fish; potentially biased calibration of models; and the use of highest simulated mercury concentration to determine required load reductions.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.uuu.

COMMENT

By using its own set of assumptions (contrary to 2000 EPA methodology for deriving ambient water quality criteria based on human health), Region 4 has far exceeded the degree of conservatism provided by the methodology.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.vvv.

COMMENT

The commenter believes the MOS is, at a minimum, on the order of 240%, and could be larger. EPA must quantify the implicit MOS in the TMDL. This does not account for the MOS already built into the reference dose or EPA's conservative assumptions in its derivation of load reductions. These assumptions lead to a load reduction that is exaggerated by a factor of over 2.5 (MOS of 165%).

EPA must quantify the implicit MOS. If EPA calculates a WQT with a more reasonable MOS, the Agency will find that current water column concentrations are already at or below levels of concern and that no load reductions from point or nonpoint sources are required.

FEBRUARY 28, 2001

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.www.

COMMENT

EPA must establish the need for a TMDL in the watershed. EPA has not demonstrated that the fishing use of the river is impaired. EPA does not have the authority to establish a TMDL for a waterbody that is not exceeding the State's numerical water quality standard. EPA must justify its technical and legal bases for the establishment of this TMDL.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.xxx.

COMMENT

EPA must re-evaluate its WQT and proposed load reductions in light of the significant scientific and legal issues raised. The quality of data collected by EPA and the way in which EPA has used this limited data to calculate the WQT and required load reductions is a concern.

EPA should re-evaluate its assumptions and calculations, specifically with regard to the adequacy of its calculated BAFs and the applicability of these BAFs to all fish caught and consumed from the Savannah River.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.yyy.

COMMENT

EPA should reevaluate its results with regard to the fish consumption guidelines issued by the Georgia EPD.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.zzz.

COMMENT

EPA must better document its models and modeling analysis in order to justify them.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.aaaa.

COMMENT

EPA should assign a load for a waterbody, and leave load allocation decisions to the Georgia EPD,

FEBRUARY 28, 2001

which is the only entity with authority to establish limits under the Clean Water Act.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.bbbb.

COMMENT

EPA has not demonstrated that exceedance of the Georgia fish consumption guideline of 0.23 mg/kg of mercury in fish tissue, which is the basis for § 303(d) listing, constitutes an impaired use of the waterbody.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.cccc.

COMMENT

It is not the case, as EPA has stated, that Georgia's Rules and Regulations for Water Quality Control do not include a numeric water quality standard for total mercury based on the protection of human health.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.dddd.

COMMENT

EPA has acted improperly to invoke Georgia's narrative standard for toxic substances to derive a WQT. This target is in fact a new water quality standard, the revision of which must follow the procedures outlined in the State's administrative procedures. If the State has erred, it is by applying a standard created for the protection of human health as an aquatic life protection criterion, not the other way around.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.eeee.

COMMENT

Region 4 is creating gross inconsistencies in mercury water quality criteria for the protection of human health by fish consumption across states in the Region. Cited are: mercury TMDLs for the Escatawpa and Bogue Chitto Rivers in Mississippi; approved mercury water quality criterion of 150 ng/l in the State of South Carolina.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.ffff.

FEBRUARY 28, 2001

COMMENT

There is no scientific basis for the regulation of mercury concentration in fish based on total mercury in the water column.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.gggg.

COMMENT

There is no relationship between total and methyl mercury in the water column, and mercury in fish.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.hhhh.

COMMENT

If EPA establishes an overly conservative WQT and TMDL and if this target or load allocation becomes a part of its NPDES permit, anti-backsliding provisions in the Clean Water Act will prevent the future relaxation of such criteria or load allocations.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.iiii.

COMMENT

The TMDL states that the entire drainage of the watershed is approximately 9.3 million square kilometers. This is clearly not the case. The actual size is about 27,000 km².

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.jjjj.

COMMENT

A statement on page 18 indicates that the watershed was divided into 32 subwatersheds. Only 31 are shown on Table 8.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.kkkk.

COMMENT

The inadequacy of documentation for this TMDL made it impossible to thoroughly review, understand, and make meaningful comment. A major drawback has been lack of documentation and a working computer code for the Watershed Characterization System (WCS). A hard copy of the WCS

FEBRUARY 28, 2001

documentation and a compact disk containing the WCS model and modeling results were received by Georgia Power on January 8, 2001. There were only 2 weeks to review the code and documentation. This is hardly adequate time for something this complex.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.iii.

COMMENT

On CD:\Savannah\Savannah Hg TMDL\Spreadsheets\Hg Data Update, on the Water Quality T sheet the “fraction” methyl mercury column is actually percent methyl mercury and the WQT column is erroneously lower by a factor of 100, as are the last two columns.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.mmmm.

COMMENT

On CD:\Savannah\Savannah Hg TMDL\Spreadsheets\Hg Data Update, on the Facility Data sheet, the flow information for some facilities is completely erroneous. EPA should recheck these values. It is not clear why EPA did not include this information in the TMDL document.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.nnnn.

COMMENT

On CD:\Savannah\Savannah Hg TMDL\Spreadsheets\Hg Data Update, the soils data for the study area from the Sediment-Soil sheet should be in the TMDL report.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.oooo.

COMMENT

Concerning CD:\Savannah\Savannah Hg TMDL\Spreadsheets\Savannah Watershed, the calculations are very recent. The commenter is very concerned about the discrepancies between the model results in the Administrative Record and the information in the TMDL document.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.pppp.

COMMENT

Concerning CD:\Savannah\Savannah Hg TMDL\Spreadsheets\Savannah Watershed, at the end of the

FEBRUARY 28, 2001

spreadsheet, EPA has multiplied the annual total load number by a factor of 2.5. Without adequate documentation, it is difficult to decode this multiplier.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.qqqq.

COMMENT

Concerning CD:\Savannah\Savannah Hg TMDL\Spreadsheets\Savannah Watershed, it is unclear how EPA calculates the contribution from NPDES sources (0.097% of the total load). This is different from the 1% value assigned in the TMDL document and 3% discussed in the November 8, 2000 public meeting.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.rrrr.

COMMENT

Concerning CD:\Savannah\Savannah Hg TMDL\Spreadsheets\Savannah WWTP, the information about QA/QC flags the concern about the detection limit/quantitation limit for methyl mercury. The spreadsheet indicates 0.11 ng/l methyl mercury concentrations are below detection limits. The reporting of extremely low methyl mercury concentrations in the TMDL document has resulted in extremely high BAFs and an unreasonably low WQT.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.ssss.

COMMENT

Concerning CD:\Savannah\WASP\WASP_Ave, there is a concern that the WASP model cannot predict actual field data for mercury and methyl mercury in sediments and water. This is of great importance because mercury concentrations in the lower segments are used to calculate atmospheric mercury load reductions.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.tttt.

COMMENT

The WCS model has some serious shortcomings - the model overestimates and misrepresents the loadings of mercury from the watershed resulting from post-industrial deposition of atmospheric

FEBRUARY 28, 2001

mercury.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.uuuu.

COMMENT

The complexity of the fate of mercury in soils, which may strongly influence the loading of mercury from the watershed, is unaccounted for by the simple approach of the soil mercury solid fraction of equilibrium.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.vvvv.

COMMENT

There are several problems with the term “leaching rate constant.” Over an annual period, the water balance across upper layers of the soil is very close to zero, so the term should effectively be zero. No leaching would be predicted.

In order to predict events of infiltration, it is normally necessary to model a daily time scale or less. There is no discussion in the documentation as to how infiltration is actually calculated. Neither is there a description of how evapotranspiration is calculated. As presented, the term double accounts infiltration.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.www.

COMMENT

In the model, apparently it is assumed that mercury which moves out of the upper layer of soil is lost to the system. This may not be a valid assumption.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.xxxx.

COMMENT

The model apparently does not model groundwater nor account for pre-industrial mercury that may be released by weathering in deeper soils and transported to nearby streams in shallow surficial aquifers. This may be a substantial oversight.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

FEBRUARY 28, 2001

13.yyyy.

COMMENT

The documentation presents no basis for the approach to calculating the reduction loss, the selection of soil base reduction rate, or soil reduction depth.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.zzzz.

COMMENT

There is no basis presented in the model for the calculation of the sediment delivery ratio or pollutant enrichment factor used in the equation to calculate erosion loss rate.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.aaaaa.

COMMENT

There is a concern with the resultant soil concentration equation in the treatment of the initial (pre-industrial) soil concentration. In the equation and model, the contribution of weathering and the release of mercury to the soil profile are overlooked entirely. This is a major oversight and serious flaw in the WCS model.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.bbbbb.

COMMENT

It is a major flaw in the model for the assumption to be made that all erosion is sheet erosion of the top layers of soil. This assumption will lead to gross overestimation of post-industrial mercury loads from watersheds.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.ccccc.

COMMENT

The model assumes no losses of mercury accumulating on impervious surfaces. This may not be a realistic treatment of the processes involved.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

FEBRUARY 28, 2001

13.ddddd.

COMMENT

The dry and wet deposition rates appear to be too high for the Savannah River watershed.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.eeeee.

COMMENT

The watershed depth of incorporation seems very low.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.fffff.

COMMENT

The initial (pre-industrial) soil concentration seems unreasonably low.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.ggggg.

COMMENT

The simulated total mercury concentration, watershed, no-till, row crops transitional and evergreen forest seem high.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.hhhhh.

COMMENT

The commenter does not see how the model could possibly be run without some sort of calibration.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.iiii.

COMMENT

EPA data would tend to suggest that there is very little post-industrial impact of mercury deposition to these soils; even though their model and TMDL suggests that ALL of the loadings to the river are from post-industrial sources.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

FEBRUARY 28, 2001

13.jjjj.

COMMENT

EPA's sampling and analysis plan for the Savannah states that soil samples are to be collected from 0-4 inches in depth. If simulations are for the top 1 cm of soil, then the commenter fails to see how this data could be used to calibrate the model.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.kkkkk.

COMMENT

EPA did not adequately notice its intent to collect fish tissue, water, soil, and sediment samples for mercury. Neither did EPA give adequate time for the public to review or comment on its sampling plan.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.llll.

COMMENT

Soil data should be presented in the TMDL and EPA should show how it is used. EPA should provide descriptions of where and how these samples were obtained.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.mmmmm.

COMMENT

Pore water in sediments data is never presented in the TMDL and is apparently not in the Administrative Record.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.nnnnn.

COMMENT

Data for suspended solids and total organic carbon is not presented in the TMDL document and could not be found in the Administrative Record.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.ooooo.

COMMENT

Data for sulfate, sulfide, nutrients, percent moisture in sediments, pore water sulfides, pH, conductivity,

FEBRUARY 28, 2001

dissolved oxygen, and temperature is not presented in the TMDL document and could not be found in the Administrative Record.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.ppppp.

COMMENT

The commenter is concerned that methyl mercury concentrations much lower than the practical quantitation limit are reported in Table 5.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.qqqqq.

COMMENT

The commenter is concerned about the quality of EPA's data. None of the QA/QC data specified in EPA's sampling and analysis plan is provided in the TMDL document. This data has yet to be made available.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.rrrrr.

COMMENT

The implicit assumption that 17.5 grams/day is the fish consumption rate for largemouth bass and trophic level four fish taken from the Savannah River is invalid.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.sssss.

COMMENT

It is incorrect that trophic level four fish were targeted in the collection because they represent a major portion of the fish size that are caught and kept by anglers and consumed as a food source.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.ttttt.

COMMENT

The data in the TMDL document clearly shows that trophic level four fish, including largemouth bass, chain pickerel, and bowfin do not represent a major portion of the fish size that are caught and kept by anglers and consumed as a food source. Largemouth bass and chain pickerel make up only 10% of the harvest by weight. The three species make up less than 15% by weight of the total harvest.

FEBRUARY 28, 2001

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.uuuuu.

COMMENT

EPA designated a trophic level four fish of 315 mm length as representative of the size and age fish that is most likely consumed. This is incorrect and misleading.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.vvvvv.

COMMENT

The Agency must agree that trophic level four fish are not the only fish caught and consumed from the Savannah, and that different fish species have different propensities for bioaccumulating mercury.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.wwwww.

COMMENT

The use of the Savannah River can be said to be impaired for human consumption of fish ONLY if fish concentrations are above 0.23 mg/kg AND greater than 30 g/day of these fish are being consumed.

This is clearly not the case.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.xxxxx.

COMMENT

EPA has been inconsistent in its use of atmospheric deposition rates between its TMDLs for the South Georgia watersheds and the Savannah River watershed. What is the justification for using RELMAP data in the Savannah River TMDL instead of the MDN data ?

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.yyyyy.

COMMENT

EPA has inappropriately calibrated its models used to simulate mercury fate and transport in the Savannah River watershed and in doing so have overestimated load reductions required to achieve the WQT.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

FEBRUARY 28, 2001

13.zzzzz.

COMMENT

The failure of the model to reproduce concentrations at the three segments furthest down stream and at river miles 140 and 150 should be discussed in the TMDL document.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.aaaaaa.

COMMENT

EPA underestimated mercury loads to the Savannah River from atmospheric and terrestrial sources by simulation under a drought scenario. There are three sources of this underestimation: wet deposition that may have occurred during the period; mercury entering the river in base flow; and mercury entering from upstream via the overflow from Hartwell Dam. EPA may have overlooked input from base flow that would occur under drought conditions and the mercury load that this base flow might carry. It is not clear whether EPA used estimates of mercury loading from upstream inputs in the drought simulations.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

13.bbbbbb.

COMMENT

In calculating the load reduction from nonpoint sources, EPA utilizes the formula:

$$\text{TMDL Load} = \frac{\text{WQT} \times \text{Current Average Annual Load}}{\text{Highest Segment Concentration}}$$

The commenter takes exception to this approach for several reasons: EPA is using the highest predicted value from the modeled segments; the designation of segments in the model is based on physical properties of the stream channel which have no correspondence to the segments of the river that on the § 303(d) list for Georgia; and EPA should not base the load reduction on any one segment at all, if fish truly move throughout the watershed, since fish would be exposed to the full range of concentrations occurring in the river.

M. E. Wilder, Land and Water Programs Manager, Environmental Affairs, Georgia Power, Bin 10221, 241 Ralph McGill Boulevard NE, Atlanta, Georgia 30308-3374, January 22, 2001

14.a.

COMMENT

EPA needs to go further in the TMDL. Limitations need to be specified to address the degree to which water point source discharges must go to achieve mercury reductions in their mercury minimization

FEBRUARY 28, 2001

programs.

Karen Patterson, Chairperson, and Jimmy Mackey, Chair, Environmental Remediation Committee, Savannah River Site Citizens Advisory Board, January 22, 2001

14.b.

COMMENT

Water point source discharges should only be required to use best available technology to practically reduce mercury effluent levels.

Karen Patterson, Chairperson, and Jimmy Mackey, Chair, Environmental Remediation Committee, Savannah River Site Citizens Advisory Board, January 22, 2001

14.c.

COMMENT

Waiting until the air point sources are reduced before EPA tries to impose water based limits that provide little benefit to the overall quality of the Savannah River may be a more prudent approach.

Karen Patterson, Chairperson, and Jimmy Mackey, Chair, Environmental Remediation Committee, Savannah River Site Citizens Advisory Board, January 22, 2001

14.d.

COMMENT

The commenter requests that EPA consider these comments as it finalizes the TMDL.

Karen Patterson, Chairperson, and Jimmy Mackey, Chair, Environmental Remediation Committee, Savannah River Site Citizens Advisory Board, January 22, 2001

14.e.

COMMENT

The commenter requests that public information meetings be held to describe practical implementation scenarios for the final TMDL and as any new information becomes available.

Karen Patterson, Chairperson, and Jimmy Mackey, Chair, Environmental Remediation Committee, Savannah River Site Citizens Advisory Board, January 22, 2001

15.a.

COMMENT

The commenter requested that dischargers that do not add mercury be explicitly excluded from the TMDL.

Gregory W. Blount, Troutman Sanders LLP, Bank of America Plaza, 600 Peachtree Street, NE, Suite 5200, Atlanta, Georgia 30308-2216, January 22, 2001

15.b.

FEBRUARY 28, 2001

COMMENT

A credit should be given to dischargers that add mercury to their effluent to reflect the load in water withdrawn or purchased by a discharger.

Gregory W. Blount, Troutman Sanders LLP, Bank of America Plaza, 600 Peachtree Street, NE, Suite 5200, Atlanta, Georgia 30308-2216, January 22, 2001

15.c.

COMMENT

EPA should allow the State of Georgia to allocate loads amongst dischargers in order to take into account efficiency and achievability in meeting load reduction goals. The Georgia EPD is the only authorized entity to establish limits and is also the best suited to allocate loads amongst point source dischargers.

Gregory W. Blount, Troutman Sanders LLP, Bank of America Plaza, 600 Peachtree Street, NE, Suite 5200, Atlanta, Georgia 30308-2216, January 22, 2001

15.d.

COMMENT

The proposed TMDL exceeds EPA's statutory authority and should not be issued as a final TMDL. The TMDL is arbitrary, capricious, an abuse of discretion, and otherwise not in accordance with law.

Gregory W. Blount, Troutman Sanders LLP, Bank of America Plaza, 600 Peachtree Street, NE, Suite 5200, Atlanta, Georgia 30308-2216, January 22, 2001

15.e.

COMMENT

EPA is statutorily barred from establishing the water quality based effluent limits set forth in the TMDL. EPA cannot establish effluent limitations or monitoring requirements in Georgia without withdrawing Georgia's NPDES authorization. Water quality based effluent limits can only be established where discharges from point sources would interfere with the maintenance of water quality and where the limits would reasonably be expected to contribute to attainment or maintenance of water quality. This is not the case. EPA has stated that 99% of the mercury problem is due to air deposition.

Gregory W. Blount, Troutman Sanders LLP, Bank of America Plaza, 600 Peachtree Street, NE, Suite 5200, Atlanta, Georgia 30308-2216, January 22, 2001

15.f.

COMMENT

EPA's rejection of Georgia's water quality standards is arbitrary, capricious, and contrary to law. EPA cannot rescind the standard of 12 ng/l and invoke a translator without rulemaking. There must be full opportunity for public participation during the adoption of a numerical standard translator. The translator procedure must be formally adopted as a State rule and submitted to EPA for review and approval. EPA has usurped the State's role in the water quality standards process.

FEBRUARY 28, 2001

Gregory W. Blount, Troutman Sanders LLP, Bank of America Plaza, 600 Peachtree Street, NE, Suite 5200,
Atlanta, Georgia 30308-2216, January 22, 2001

15.g.

COMMENT

EPA has failed to stick to one valid and publicly noticed methodology and set of assumptions for establishing human health criteria for mercury and that is arbitrary and capricious.

Gregory W. Blount, Troutman Sanders LLP, Bank of America Plaza, 600 Peachtree Street, NE, Suite 5200,
Atlanta, Georgia 30308-2216, January 22, 2001

15.h.

COMMENT

Inadequate and geographically limited sampling render the TMDL arbitrary and capricious. Limited samples taken during one time period at limited locations do not adequately characterize the entire watershed or the listed segments. EPA must collect representational data from other listed segments and during other time periods in order to extend this TMDL beyond the sampled segments and have reliable data quality.

Gregory W. Blount, Troutman Sanders LLP, Bank of America Plaza, 600 Peachtree Street, NE, Suite 5200,
Atlanta, Georgia 30308-2216, January 22, 2001

15.i.

COMMENT

The administrative record is inadequate and poorly accessible. The record lacks: information regarding many of EPA's crucial legal and scientific assumptions; sample quality assurance/quality control information; water quality standards information; the rationale for using a translator of a narrative standard; information as to whether EPA has considered its several other actions and positions taken over the years; information regarding mercury in the majority of identified dischargers' effluent; chain of custody information; precise geographic information regarding the location of samples taken and whether ultra-clean procedures were followed; data regarding the portion of mercury in soils that can be attributed to atmospheric deposition, and hence runoff; and information regarding estuarine waters.

Gregory W. Blount, Troutman Sanders LLP, Bank of America Plaza, 600 Peachtree Street, NE, Suite 5200,
Atlanta, Georgia 30308-2216, January 22, 2001

15.j.

COMMENT

It appears as if some technical information was improperly updated following the date of proposal.

Gregory W. Blount, Troutman Sanders LLP, Bank of America Plaza, 600 Peachtree Street, NE, Suite 5200,
Atlanta, Georgia 30308-2216, January 22, 2001

FEBRUARY 28, 2001

15.k.

COMMENT

EPA's unsupported assumption that mercury is in the effluent of all point source dischargers in the basin is arbitrary and capricious. EPA cannot require removal of mercury by dischargers that do not add mercury to their discharges.

Gregory W. Blount, Troutman Sanders LLP, Bank of America Plaza, 600 Peachtree Street, NE, Suite 5200, Atlanta, Georgia 30308-2216, January 22, 2001

15.l.

COMMENT

EPA lacks authority to regulate point source dischargers due to problems it identifies as air deposition. A waterbody impaired by air deposition should not be subject to a TMDL. EPA exceeds its authority under the Clean Water Act in attempting to regulate point source discharges based upon an atmospheric deposition issue. The Clean Air Act is EPA's sole authority for such assessment and regulation.

Gregory W. Blount, Troutman Sanders LLP, Bank of America Plaza, 600 Peachtree Street, NE, Suite 5200, Atlanta, Georgia 30308-2216, January 22, 2001

15.m.

COMMENT

The commenter disputes the determination that 0.33 kg/year mercury loading from point source were a valid point source load for a TMDL.

Gregory W. Blount, Troutman Sanders LLP, Bank of America Plaza, 600 Peachtree Street, NE, Suite 5200, Atlanta, Georgia 30308-2216, January 22, 2001

15.n.

COMMENT

The TMDL should not go so far as to allocate by percentage the mercury allowable for point source discharges.

Gregory W. Blount, Troutman Sanders LLP, Bank of America Plaza, 600 Peachtree Street, NE, Suite 5200, Atlanta, Georgia 30308-2216, January 22, 2001

15.o.

COMMENT

Mercury is a loading based pollutant and concentration is irrelevant.

Gregory W. Blount, Troutman Sanders LLP, Bank of America Plaza, 600 Peachtree Street, NE, Suite 5200, Atlanta, Georgia 30308-2216, January 22, 2001

15.p.

COMMENT

FEBRUARY 28, 2001

EPA has been prohibited by Congress from expenditures for the establishment of implementation plans in TMDLs.

Gregory W. Blount, Troutman Sanders LLP, Bank of America Plaza, 600 Peachtree Street, NE, Suite 5200, Atlanta, Georgia 30308-2216, January 22, 2001

15.q.

COMMENT

EPA's mercury translator is arbitrary and capricious. EPA's position contradicts the position taken in numerous other matters.

Gregory W. Blount, Troutman Sanders LLP, Bank of America Plaza, 600 Peachtree Street, NE, Suite 5200, Atlanta, Georgia 30308-2216, January 22, 2001

15.r.

COMMENT

EPA has failed to assess and consider the FDA fish consumption rate and the Georgia fish consumption rates in the fish consumption guidelines in developing the TMDL. EPA's higher consumption rate is unrealistic, overly conservative, and results in a very stringent water quality target.

Gregory W. Blount, Troutman Sanders LLP, Bank of America Plaza, 600 Peachtree Street, NE, Suite 5200, Atlanta, Georgia 30308-2216, January 22, 2001

15.s.

COMMENT

EPA's sampling supports the commenter's position that the Savannah River is not impaired for mercury.

Gregory W. Blount, Troutman Sanders LLP, Bank of America Plaza, 600 Peachtree Street, NE, Suite 5200, Atlanta, Georgia 30308-2216, January 22, 2001

15.t.

COMMENT

It is a concern that the minimal sampling efforts undertaken for a TMDL could cost millions to implement without resulting in any improvement in water quality.

Gregory W. Blount, Troutman Sanders LLP, Bank of America Plaza, 600 Peachtree Street, NE, Suite 5200, Atlanta, Georgia 30308-2216, January 22, 2001

15.u.

COMMENT

EPA provides no support for its assumption that fish migrate throughout the watershed.

Gregory W. Blount, Troutman Sanders LLP, Bank of America Plaza, 600 Peachtree Street, NE, Suite 5200, Atlanta, Georgia 30308-2216, January 22, 2001

FEBRUARY 28, 2001

15.v.

COMMENT

EPA has no permit information for the 79 NPDES permitted facilities which could potentially have mercury in their discharge.

Gregory W. Blount, Troutman Sanders LLP, Bank of America Plaza, 600 Peachtree Street, NE, Suite 5200, Atlanta, Georgia 30308-2216, January 22, 2001

15.w.

COMMENT

Data in the administrative record does not support EPA's estimate that approximately 99% of the mercury load is due to atmospheric deposition. EPA failed to adequately identify sources of air deposition and its quantification of the amount of air deposition.

Gregory W. Blount, Troutman Sanders LLP, Bank of America Plaza, 600 Peachtree Street, NE, Suite 5200, Atlanta, Georgia 30308-2216, January 22, 2001

15.x.

COMMENT

It is unclear where EPA draws the line delineating freshwater from estuarine and marine waters for this TMDL.

Gregory W. Blount, Troutman Sanders LLP, Bank of America Plaza, 600 Peachtree Street, NE, Suite 5200, Atlanta, Georgia 30308-2216, January 22, 2001

15.y.

COMMENT

Mercury is not the correct pollutant for the purpose of regulation to achieve fish tissue concentrations. EPA has no certainty that any mercury discharged into the Savannah River will ultimately be converted into methylmercury. Data in the administrative record shows that there is no direct correlation between inorganic mercury and methylmercury. EPA should revisit its decision to regulate mercury as a contributor to methylmercury bioaccumulation in fish. Until sufficient data showing a correlation are available, additional limits on mercury discharges other than those supportable by current Georgia water quality standards should not be recommended.

Gregory W. Blount, Troutman Sanders LLP, Bank of America Plaza, 600 Peachtree Street, NE, Suite 5200, Atlanta, Georgia 30308-2216, January 22, 2001

15.z.

COMMENT

The commenter would like to meet with EPA to discuss the issues and to try to better understand a strategy for addressing the TMDL and a fair allocation of responsibilities.

Gregory W. Blount, Troutman Sanders LLP, Bank of America Plaza, 600 Peachtree Street, NE, Suite 5200, Atlanta, Georgia 30308-2216, January 22, 2001

FEBRUARY 28, 2001

16.a.

COMMENT

The commenter joins in and seconds the comments filed on January 22, 2001, on behalf of the Central Savannah River Area Coalition.

Patricia T. Barmeyer, King & Spalding, 191 Peachtree Street, Atlanta, Georgia 30303-1763, January 22, 2001

16.b.

COMMENT

The commenter has contacted analytical laboratories and has learned that labs have experienced significant problems associated with analyzing mercury at the levels contemplated in the proposed TMDL. The commenter questions whether accurate measurements can be obtained at these levels.

Patricia T. Barmeyer, King & Spalding, 191 Peachtree Street, Atlanta, Georgia 30303-1763, January 22, 2001

16.c.

COMMENT

The commenter urges EPA not to adopt the proposed TMDL for mercury without further consideration of the legal basis, anticipated environmental benefit, and economic cost.

Patricia T. Barmeyer, King & Spalding, 191 Peachtree Street, Atlanta, Georgia 30303-1763, January 22, 2001

17.a.

COMMENT

The commenter concurs with and supports the comments submitted by the Federal Water Quality Coalition and the Georgia Industry Environmental Coalition.

Marian Bard, Chairman, Technical Committee, Georgia Pulp and Paper Association, 999 Peachtree Street, NE, Atlanta, Georgia 30309-3996, January 22, 2001

17.b.

COMMENT

The commenter concurs with and supports the comments submitted directly by International Paper.

Marian Bard, Chairman, Technical Committee, Georgia Pulp and Paper Association, 999 Peachtree Street, NE, Atlanta, Georgia 30309-3996, January 22, 2001

18.a.

COMMENT

Mercury processes are not well understood and more research is needed before a mercury TMDL is established.

Mark Ferguson, Environmental Services, SCANA Services, Inc., 1426 Main Street, Columbia, South Carolina 29201, January 22, 2001

FEBRUARY 28, 2001

18.b.

COMMENT

The TMDL contains no analysis of possible natural sources of mercury in the basin.

Mark Ferguson, Environmental Services, SCANA Services, Inc., 1426 Main Street, Columbia, South Carolina
29201, January 22, 2001

18.c.

COMMENT

Common industrial chemicals such as sodium hydroxide have mercury values up to 9 ppt.

Mark Ferguson, Environmental Services, SCANA Services, Inc., 1426 Main Street, Columbia, South Carolina
29201, January 22, 2001

18.d.

COMMENT

Existing water quality criteria for mercury are being attained and a mercury TMDL for the Savannah River is premature at this time.

Mark Ferguson, Environmental Services, SCANA Services, Inc., 1426 Main Street, Columbia, South Carolina
29201, January 22, 2001

18.e.

COMMENT

EPA's recommended human health water quality criteria do not impose legally binding requirements as these are not regulations themselves.

Mark Ferguson, Environmental Services, SCANA Services, Inc., 1426 Main Street, Columbia, South Carolina
29201, January 22, 2001

18.f.

COMMENT

The wasteload allocation is not fairly equated to NPDES sources on the Savannah River. The water quality target concentration limit is assigned to existing point sources that have mercury limits. These sources are being penalized for having submitted information that resulted in mercury permit limits. These point sources should be assigned a larger percent of the available load.

Mark Ferguson, Environmental Services, SCANA Services, Inc., 1426 Main Street, Columbia, South Carolina
29201, January 22, 2001

18.g.

COMMENT

The mercury data that is reported is suspect to statistical variations. The limited data over a few months time is suspect for reliability and the representativeness of conditions in the watershed.

Mark Ferguson, Environmental Services, SCANA Services, Inc., 1426 Main Street, Columbia, South Carolina
29201, January 22, 2001

FEBRUARY 28, 2001

18.h.

COMMENT

None of the data presented in the TMDL allows for calculation of a WQT with as many significant figures as the one derived. “Ultra-trace level techniques” used has a detection limit of 0.5 ng/l, one less significant figure than the calculated WQT.

Mark Ferguson, Environmental Services, SCANA Services, Inc., 1426 Main Street, Columbia, South Carolina 29201, January 22, 2001

18.i.

COMMENT

None of the environmental results for mercury in the Savannah River can be defensible.

Mark Ferguson, Environmental Services, SCANA Services, Inc., 1426 Main Street, Columbia, South Carolina 29201, January 22, 2001

18.j.

COMMENT

The TMDL relies too heavily on the models and assumptions of their accuracy. There is little discussion of how well the measured data fit the predicted curves. Because the models have the potential to introduce error into the final result, the error should be reported and accounted for, as should the variability introduced throughout the processing of data.

Mark Ferguson, Environmental Services, SCANA Services, Inc., 1426 Main Street, Columbia, South Carolina 29201, January 22, 2001

18.k.

COMMENT

The water quality target of 2.83 ng/l is unattainable by current treatment technology and should not be implemented. Even if treatment technology was available, the cost would make it unaffordable. EPA needs to consider the economic impact resulting from this TMDL.

Mark Ferguson, Environmental Services, SCANA Services, Inc., 1426 Main Street, Columbia, South Carolina 29201, January 22, 2001

18.l.

COMMENT

There are potential laboratory interferences with Method 1631. NPDES permit regulations require composite sampling for heavy metals such as mercury. “Clean hands” techniques cannot be utilized when composite-sampling equipment is left in place for 24 hours to automatically collect samples.

Mark Ferguson, Environmental Services, SCANA Services, Inc., 1426 Main Street, Columbia, South Carolina 29201, January 22, 2001

FEBRUARY 28, 2001

18.m.

COMMENT

The commenter suggested the following alternatives that should be considered prior to establishment of the water quality target:

- sampling and analysis of effluents, streams, tributaries, air sources, fish, sediments, soil, and groundwater
- testing, evaluation, purchasing, and construction of wastewater treatment facilities to meet NPDES permit limits that are more stringent than those that would normally be established using water quality criteria
- establishment of effluent trading programs, where applicable
- demonstrations, through data collection and/or modeling, that the waters not currently attaining standards are improving and once again attaining standards.

Mark Ferguson, Environmental Services, SCANA Services, Inc., 1426 Main Street, Columbia, South Carolina 29201, January 22, 2001

19.a.

COMMENT

EPA has arbitrarily and without basis rejected Georgia's water quality standard of 12 ppt as the TMDL target.

T. Mayes Starke, P.E., Georgia-Pacific Corporation, 133 Peachtree Street NE, Post Office Box 105605, Atlanta, Georgia 30348-5606, January 22, 2001

19.b.

COMMENT

There is no basis for the calculation of margin of safety and implicitly incorporating the MOS by using conservative model assumptions does not reflect accepted water quality modeling methodology.

T. Mayes Starke, P.E., Georgia-Pacific Corporation, 133 Peachtree Street NE, Post Office Box 105605, Atlanta, Georgia 30348-5606, January 22, 2001

19.c.

COMMENT

EPA's proposed Option 1 eliminates the use of mixing zones to attain water quality criteria. There is nothing in 40 CFR 122 or 131 which prohibits the use of mixing zones to this purpose.

T. Mayes Starke, P.E., Georgia-Pacific Corporation, 133 Peachtree Street NE, Post Office Box 105605, Atlanta, Georgia 30348-5606, January 22, 2001

19.d.

COMMENT

EPA's proposed Option 2 has drawbacks because some facilities with minimization plans have not

FEBRUARY 28, 2001

shown a directly proportionate reduction in mercury that is consistently maintained. The imposition of permit limits would not allow the facility a reasonable assurance that compliance with permit limits could be consistently controlled or met.

Any imposed permit limit should only require mercury minimization.

A voluntary cooperative effort between the state and industry could offer the most beneficial and quickest implementation.

T. Mayes Starke, P.E., Georgia-Pacific Corporation, 133 Peachtree Street NE, Post Office Box 105605, Atlanta, Georgia 30348-5606, January 22, 2001

19.f.

COMMENT

The commenter urged EPA Region 4 to reconsider and revise the methodology used in developing the TMDL.

T. Mayes Starke, P.E., Georgia-Pacific Corporation, 133 Peachtree Street NE, Post Office Box 105605, Atlanta, Georgia 30348-5606, January 22, 2001

20.a.

COMMENT

There is no scientific or legal basis for this TMDL and it should not have been proposed.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.b.

COMMENT

EPA has not demonstrated that Georgia's existing water quality standard is not protective of human health or the use of the river for fishing.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.c.

COMMENT

Without an exceedance of a water quality standard, there is no basis for listing a water.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.d.

COMMENT

Measurements of total and methyl mercury made in the water column of the Savannah River during

FEBRUARY 28, 2001

EPA's sampling event were all well below the State of Georgia's water quality criterion of 12 ng/l.
**R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248,
Charleston, Tennessee 37310, January 22, 2001**

20.e.

COMMENT

Georgia's ambient water quality criterion for mercury is human health based and EPA has acted improperly to invoke Georgia's narrative standard for toxic substances to derive a water quality target. The target is, in fact, a new water quality standard, the revision of which must follow the procedures outlined in the State's administrative procedures.

**R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248,
Charleston, Tennessee 37310, January 22, 2001**

20.f.

COMMENT

EPA has not demonstrated that the Savannah river is impaired because of human consumption of fish tissue containing mercury. The river should be removed from the § 303(d) list, a TMDL is not needed, and no load reductions from either point or nonpoint sources are required.

**R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248,
Charleston, Tennessee 37310, January 22, 2001**

20.g.

COMMENT

The risk parameters used in the fish consumption guidelines are more stringent than the parameters that would have been used by the State in setting water quality standards, and, therefore, under EPA's October 24, 2000 guidance, these waters are not required to be listed.

**R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248,
Charleston, Tennessee 37310, January 22, 2001**

20.h.

COMMENT

EPA has not addressed previously identified problem of appropriateness of water quality standards.

**R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248,
Charleston, Tennessee 37310, January 22, 2001**

20.i.

COMMENT

EPA has not addressed previously identified problem of use of an inappropriately large and unquantified margin of safety leading to an unrealistically low WQT and exaggerated estimates of required load reductions.

FEBRUARY 28, 2001

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.j.

COMMENT

There is a concern about implementation of wasteload allocations to point sources and for permit conditions for NPDES facilities in Georgia.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.k.

COMMENT

There is a concern about errors and lack of adequate documentation for the derivation of the TMDL.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.l.

COMMENT

There is a concern about inconsistencies between EPA's sampling and analysis plan and the data presented in the TMDL document.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.m.

COMMENT

There is a concern with the misapplication of the methodology to derive ambient water quality criteria for human health protection.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.n.

COMMENT

The commenter does not believe there is a legal basis for mandating mercury effluent reductions from NPDES point sources during Phase I of the TMDL.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.o.

COMMENT

FEBRUARY 28, 2001

During Phase I, EPA should set the wasteload allocation for point sources at their current discharge level and allow point sources to continue discharging at their current effluent limits, rather than compelling them to select between a criteria end-of-pipe effluent limit or a mercury minimization program. If the data collected during Phase I indicate that load reductions from point sources are necessary to achieve the TMDL, then such reductions may be mandated through a point source wasteload allocation in Phase II.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.p.

COMMENT

If permit revisions are required during Phase I, the following approach is suggested:

- for facilities with current mercury permit limit, the limit will be retained and analysis using Method 1631 will be required
- permits will be modified to require all NPDES facilities to conduct a one time mercury sampling using clean techniques
- for each facility with mercury discharge above 2.83 ng/l, the permit will be modified to require development of a mercury minimization plan.

The mercury minimization plan will include:

- " description of reduction/elimination measures that have been undertaken
- " preparation and implementation of a plan of study
- " preparation of a mercury minimization plan including a strategy for locating, identifying, and reducing sources
- " preparation of annual reports to the permitting authority on progress made

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.q.

COMMENT

There is a concern about inconsistencies between EPA's sampling and analysis plan and the data presented in the TMDL document and the Administrative Record. These have made it difficult to adequately comment on the TMDL.

FEBRUARY 28, 2001

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.r.

COMMENT

It is not clear whether water column mercury concentrations were measured in filtered or unfiltered samples. Table 5 of the TMDL indicates that the majority of the samples were unfiltered. If these samples were unfiltered, then calculating BAFs from these samples represents a departure from normal and accepted scientific procedures.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.s.

COMMENT

The commenter finds that EPA has not followed its recently finalized methodology to derive the water quality target for the river. EPA has calculated the WQT by using a fish consumption rate with a bioaccumulation factor measured in the river for only largemouth bass and other trophic level four fish. The finalized methodology recommends that BAFs be determined and applied on a trophic level-specific basis.

Olin has estimated the species-weighted BAF to be 1,650,000 L/kg. Using this BAF in the WQT formula results in a WQT of 6.9 ng/l. This WQT is above most of the ambient concentrations recently measured in the river and far above the average. This is further evidence that the Savannah River is not impaired for fishing.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.t.

COMMENT

EPA continues to make use of an excessive and unquantified MOS.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.u.

COMMENT

EPA indicates that MOS is incorporated implicitly by selecting the highest predicted water column concentration of mercury in the entire stretch of the river. This statement is incorrect and misleading because this is only ONE way that EPA has incorporated an MOS into the TMDL. Also used are: incorporation of a factor of 10 in the reference dose; use of potentially biased data to calculate BAFs; sampling and calculation of BAFs from only trophic level four fish; potentially biased calibration of

FEBRUARY 28, 2001

models; and the use of highest simulated mercury concentration to determine required load reductions.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.v.

COMMENT

The commenter believes the MOS is, at a minimum, on the order of 240%, and could be larger. EPA must quantify the implicit MOS in the TMDL.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.w.

COMMENT

If EPA calculates a WQT with a more reasonable MOS, the Agency will find that current water column concentrations are already at or below levels of concern and that no load reductions from point or nonpoint sources are required.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.x.

COMMENT

The conservative assumptions in the derivation of load reductions have lead to a load reduction that is exaggerated by a factor of over 2.5 (MOS of 165%).

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.y.

COMMENT

EPA must establish the need for a TMDL in the watershed. EPA has not demonstrated that the fishing use of the river is impaired. EPA does not have the authority to establish a TMDL for a waterbody that is not exceeding the State's numerical water quality standard. EPA must justify its technical and legal bases for the establishment of this TMDL.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.z.

COMMENT

EPA must re-evaluate its WQT and proposed load reductions in light of the significant scientific and legal issues raised. The quality of data collected by EPA and the way in which EPA has used this limited data to calculate the WQT and required load reductions is a concern.

FEBRUARY 28, 2001

EPA should re-evaluate its assumptions and calculations, specifically with regard to the adequacy of its calculated BAFs and the applicability of these BAFs to all fish caught and consumed from the Savannah River.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.aa.

COMMENT

EPA should reevaluate its results with regard to the fish consumption guidelines issued by the Georgia EPD.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.bb.

COMMENT

EPA must better document its models and modeling analysis in order to justify the suggested load reductions.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.cc.

COMMENT

EPA should re-evaluate the prescribed actions for point source dischargers. EPA should set the wasteload allocation for point sources at their current discharge level and allow point sources to continue discharging at their current effluent limits, rather than requiring them to select between a “target end of pipe” effluent limit or a mercury minimization program.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.dd.

COMMENT

EPA has not demonstrated that exceedance of the Georgia fish consumption guideline of 0.23 mg/kg of mercury in fish tissue, which is the basis for § 303(d) listing, constitutes an impaired use of the waterbody.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.ee.

COMMENT

It is not the case, as EPA has claimed, that Georgia’s Rules and Regulations for Water Quality Control

FEBRUARY 28, 2001

do not include a numeric water quality standard for total mercury based on the protection of human health.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.ff.

COMMENT

The inadequacy of documentation for this TMDL made it difficult to adequately review and make meaningful comment. A major drawback has been lack of documentation and a working computer code for the Watershed Characterization System (WCS). A hard copy of the WCS documentation and a compact disk containing the WCS model and modeling results were received by Olin on January 8, 2001. This information was provided too late to provide adequate comments.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.gg.

COMMENT

On CD:\Savannah\Savannah Hg TMDL\Spreadsheets\Hg Data Update, on the Water Quality T sheet the "fraction" methyl mercury column is actually percent methyl mercury and the WQT column is erroneously lower by a factor of 100, as are the last two columns.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.hh.

COMMENT

On CD:\Savannah\Savannah Hg TMDL\Spreadsheets\Hg Data Update, on the Facility Data sheet, the flow information for some facilities is completely erroneous. EPA should recheck these values. It is not clear why EPA did not include this information in the TMDL document.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.ii.

COMMENT

On CD:\Savannah\Savannah Hg TMDL\Spreadsheets\Hg Data Update, it is unclear where the soil samples were collected and how the data was used to calibrate the WCS model.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.jj.

COMMENT

FEBRUARY 28, 2001

Concerning CD:\Savannah\Savannah Hg TMDL\Spreadsheets\Savannah WWTP, the information about QA/QC flags the concern about the detection limit/quantitation limit for methyl mercury. The spreadsheet indicates 0.11 ng/l methyl mercury concentrations are below detection limits. The reporting of extremely low methyl mercury concentrations in the TMDL document has resulted in extremely high BAFs and an unreasonably low WQT.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.kk.

COMMENT

EPA did not adequately notice its intent to collect fish tissue, water, soil, and sediment samples for mercury. Neither did EPA give adequate time for the public to review or comment on its sampling plan.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.ll.

COMMENT

Soil data should be presented in the TMDL and EPA should show how it is used. EPA should provide descriptions of where and how these samples were obtained.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.mm.

COMMENT

Pore water in sediments data is never presented in the TMDL.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.nn.

COMMENT

Data for suspended solids and total organic carbon is not presented in the TMDL document and could not be found in the Administrative Record.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.oo.

COMMENT

Data for sulfate, sulfide, nutrients, percent moisture in sediments, pore water sulfides, pH, conductivity, dissolved oxygen, and temperature is not presented in the TMDL document.

FEBRUARY 28, 2001

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.pp.

COMMENT

Olin is concerned that methylmercury concentrations much lower than the practical quantitation limit are reported in Table 5 of the TMDL.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.qq.

COMMENT

Olin is very concerned about the quality of EPA's data. EPA's total methyl mercury numbers are on average 30% lower than number from SRS' analysis (split samples between EPA and SRS). EPA and SRS results for mercury in fish tissue are comparable. None of the QA/QC data specified in EPA's sampling and analysis plan is provided in the TMDL document and has not yet been provided to Olin.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.rr.

COMMENT

EPA's October 2000 methodology for deriving ambient water quality criteria for the protection of human health recommends four methods to calculate the fish intake rate. There is no indication that this guideline in the methodology has been followed in calculating WQT.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.ss.

COMMENT

It is incorrect that trophic level four fish, largemouth bass, were targeted in the collection because they represent a major portion of the fish size that are caught and kept by anglers and consumed as a food source. Largemouth bass and chain pickerel make up only 10% of the harvest by weight. These two and bowfin make up less than 15% by weight of the total harvest.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.tt.

COMMENT

EPA designated a trophic level four fish of 315 mm length as representative of the size and age fish that is most likely consumed. This is incorrect and misleading.

FEBRUARY 28, 2001

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.uu.

COMMENT

Olin has estimated the species-weighted BAF to be 1,650,000 L/kg. Using this BAF in the WQT formula results in a WQT of 6.9 ng/l.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.vv.

COMMENT

The Agency must agree that trophic level four fish are not the only fish caught and consumed from the Savannah, and that different fish species have different propensities for bioaccumulating mercury.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.ww.

COMMENT

EPA has misinterpreted the fish consumption guidelines. Fish tissue concentrations alone are irrelevant unless tied to a consumption rate because without fish consumption there is no exposure.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.xx.

COMMENT

The use of the Savannah River can be said to be impaired for human consumption of fish ONLY if fish concentrations are above 0.23 mg/kg AND greater than 30 g/day of these fish are being consumed.

This is clearly not the case.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.yy.

COMMENT

The application of a fish consumption rate of 17.5 g/day to trophic level four fish has caused EPA to introduce an MOS into the calculation of the WQT of approximately 2.4 (140%).

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

20.zz.

COMMENT

An additional but unknown MOS is added by not accounting for the fraction of the daily fish intake

FEBRUARY 28, 2001

made up of fish consumed from waterbodies other than the Savannah River.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali, 1186 Lower River Road, Post Office Box 248, Charleston, Tennessee 37310, January 22, 2001

21.a.

COMMENT

According to the Method 1631 developers, the detection level for the method is 0.2 ppt with a stated MDL of 0.1 ppt. The precision of results is generally +/- 100%.

For this reason, the proposed TMDL mercury target of 2.83 ppt cannot be enforced by EPA since it can't be measured to +/- tens of parts per quadrillion.

Perry Holcomb, 1891 Green Forest Drive, North Augusta, South Carolina 29841-2173, January 29, 2001 (electronic mail)

21.b.

COMMENT

Mercury can't even be quantitatively measured at a level an order of magnitude higher (+/- 100 ppq); i.e., practically, the difference between 2.8 ppt and 2.9 ppt mercury cannot be distinguished.

Perry Holcomb, 1891 Green Forest Drive, North Augusta, South Carolina 29841-2173, January 29, 2001 (electronic mail)

21.c.

COMMENT

EPA should not only reconsider its proposed mercury TMDL for the Savannah River but it should also make absolutely sure it isn't "knee jerking" in setting such a low target when our environment already contains significant mercury concentrations to which the public are already exposed.

Perry Holcomb, 1891 Green Forest Drive, North Augusta, South Carolina 29841-2173, January 29, 2001 (electronic mail)

22.a.

COMMENT

The commenter is concerned with EPA's assumption that reductions in anthropogenic aqueous mercury concentrations will produce beneficial reduction of mercury in fish without considering natural sources and the geochemical and biological cycling of mercury in the aquatic environment.

Andy Lawrence, Director, Office of Environmental Policy and Guidance, U. S. Department of Energy, February 1, 2001

22.b.

FEBRUARY 28, 2001

COMMENT

The commenter is concerned with the lack of validated documentation and an adequate database to support EPA's conclusions.

Andy Lawrence, Director, Office of Environmental Policy and Guidance, U. S. Department of Energy, February 1, 2001

22.c.

COMMENT

The commenter is concerned about the need for cost benefit analysis to support the proposed mercury TMDL.

Andy Lawrence, Director, Office of Environmental Policy and Guidance, U. S. Department of Energy, February 1, 2001

22.d.

COMMENT

The commenter urges EPA to conduct more research into the causes and solutions for waterbody impairments due to atmospheric deposition and investigate other sources of mercury such as "natural sources" found in the soil which may impact the mercury loading in the Savannah River.

Andy Lawrence, Director, Office of Environmental Policy and Guidance, U. S. Department of Energy, February 1, 2001

22.e.

COMMENT

The assumption that 99% of the mercury loading to the Savannah is derived from current atmospheric deposition is questionable. If atmospheric mercury inputs could be reduced to zero, the mercury content of soil and sediment would not return to zero but would remain at a value consistent with the crustal abundance of mercury in rocks from which soils are derived. It appears that the TMDL does not take into account this geologic mercury source, and assumes that a decrease in atmospheric loading would cause a proportionate decrease in mercury in surface water.

Andy Lawrence, Director, Office of Environmental Policy and Guidance, U. S. Department of Energy, February 1, 2001

22.f.

COMMENT

EPA should use the best possible data and readily available predictive models on impaired waters. The TMDL relies too heavily on the models and assumptions of their accuracy. There is little discussion of the comparisons of predicted results and actual measurements in the report, and no estimates of how well the measured data fit the predicted curves. Because the models have the potential to introduce

FEBRUARY 28, 2001

error into the final results, the commenter recommended that the error (uncertainty) be reported and accounted for, as should the variabilities introduced through the modeling processing.

Andy Lawrence, Director, Office of Environmental Policy and Guidance, U. S. Department of Energy, February 1, 2001

22.g.

COMMENT

The commenter has serious reservations with the establishment of criteria based on one sampling event. It is not clear that a generalized BAF as used in the proposed TMDL accurately reflects conditions when based on short-term measurements of concentrations in the water and fish pools. Methylation rates for mercury and bioaccumulation rates for fish vary seasonally and are dependent on other parameters such as water pH and organic content.

Andy Lawrence, Director, Office of Environmental Policy and Guidance, U. S. Department of Energy, February 1, 2001

22.h.

COMMENT

It is imperative that regulatory decisions be based on an adequate database. No statistics to support uncertainty estimates are provided for any of the data used by EPA in establishing the TMDL. The commenter strongly recommended that additional seasonal sampling be performed over several years during both low and high stream flow rates so that a valid target criterion for the presence of mercury in surface water can be established that is based on adequate data.

Andy Lawrence, Director, Office of Environmental Policy and Guidance, U. S. Department of Energy, February 1, 2001

22.i.

COMMENT

For the present, NPDES permits should be written based on existing procedures and water quality standards and revised as these procedures and standards are updated through the appropriate regulatory processes.

Andy Lawrence, Director, Office of Environmental Policy and Guidance, U. S. Department of Energy, February 1, 2001

22.j.

COMMENT

Protective approaches, other than the margin of safety analysis, should be considered to achieve health protection given the economic impacts that would result from entities driving to meet the proposed reduction goal.

Andy Lawrence, Director, Office of Environmental Policy and Guidance, U. S. Department of Energy, February 1, 2001

FEBRUARY 28, 2001

22.k.

COMMENT

The method used to generate the WQT is confusing and should be clarified. Is the appropriate fish criterion 0.23 mg/kg, 0.3 mg/kg, or 0.4 mg/kg ?

Andy Lawrence, Director, Office of Environmental Policy and Guidance, U. S. Department of Energy, February 1, 2001

22.l.

COMMENT

The degree to which mercury is transformed into methylmercury and transferred up the food chain through bioaccumulation depends on many site-specific factors through processes that are not completely understood. The proposed TMDL does not account for these uncertainties in proposing a WQT. The commenter recommended that supporting statistical analysis accompany the TMDL to help understand the reliability and uncertainty of the data.

Andy Lawrence, Director, Office of Environmental Policy and Guidance, U. S. Department of Energy, February 1, 2001

22.m.

COMMENT

None of the data presented in the TMDL allows for the calculation of a WQT with as many significant figures as that presented. EPA's analysis and reporting produces results with a false sense of accuracy.

Andy Lawrence, Director, Office of Environmental Policy and Guidance, U. S. Department of Energy, February 1, 2001

22.n.

COMMENT

The usage of the term "target concentration" and WQT are confusing in the discussion. Are these two synonymous or different ? The commenter recommended that a statement be provided in the introduction and in the discussion of target identification clarifying these terms.

Andy Lawrence, Director, Office of Environmental Policy and Guidance, U. S. Department of Energy, February 1, 2001

22.o.

COMMENT

If air sources are reduced by 40 - 50% by 2010 and EPA decides to revise the load allocation, point source dischargers would be unable to take advantage of a less restrictive TMDL because of State anti-degradation rules. EPA should provide for protection from anti-degradation rules, allowing point

FEBRUARY 28, 2001

source dischargers to take advantage of TMDLs that will developed later if it is determined to be protective to do so.

Andy Lawrence, Director, Office of Environmental Policy and Guidance, U. S. Department of Energy, February 1, 2001

22.p.

COMMENT

The potential costs of attempting to comply with NPDES permits incorporating the proposed revised mercury TMDL is of concern. The notion of stricter NPDES controls to measure and comply with very low mercury limits does not appear cost-effective, when there is no significant contribution to the reduction goal to be achieved from these sources (as EPA has stated). The commenter shares EPA's concern regarding potential for significant social and a economic disruption if unattainable requirements are placed upon permit holders.

The proposed NPDES permit requirements may be unduly cumbersome and expensive. EPA should do an economic analysis of this TMDL to determine cost versus benefit for the Savannah River Basin.

Andy Lawrence, Director, Office of Environmental Policy and Guidance, U. S. Department of Energy, February 1, 2001

22.q.

COMMENT

Resources could be used more effectively if they were invested in pollution prevention activities that provide a more commensurate benefit.

Andy Lawrence, Director, Office of Environmental Policy and Guidance, U. S. Department of Energy, February 1, 2001

22.r.

COMMENT

Ultra-clean collection and analysis for trace levels of mercury would be more costly than current methods.

Andy Lawrence, Director, Office of Environmental Policy and Guidance, U. S. Department of Energy, February 1, 2001

23.a.

COMMENT

The commenter stated that EPA issued a new methylmercury water quality criterion, which is a residual fish tissue concentration of 0.3 mg methylmercury per kg in fish. This new mercury criterion is considerably higher than the 0.23 mg/kg threshold level specified in Georgia's risk consumption

FEBRUARY 28, 2001

guidelines, which EPA used as a basis for the TMDL. If EPA's criterion was used as the target for the TMDL, the commenter estimates that the mercury load reduction needed to achieve the water quality target in the Savannah River would be 30% less than EPA's estimated load reduction. This lower percentage reduction could be achieved without requiring reductions from the point sources on the river. Thus, the EPA new methylmercury criterion provides further support that EPA should not require loading reductions from point sources in this TMDL.

R. W. Hyland, Manager, Environmental Services, Olin Chlor Alkali Products, 1186 Lower River Road, NW, Post Office Box 248, Charleston, Tennessee 37310-0248, February 16, 2001

26.a.

COMMENT

The TMDL does not meet the requirements of the Clean Water Act because the wasteload allocations (WLAs), by themselves, are not set at levels necessary to achieve standards, or at least to levels to reduce the impairment as much as possible, and reliance is made on reductions in the load allocations (LAs) without any reasonable assurances the LAs will be achieved.

The entire load must be borne by the point sources and their allocation in this situation must be zero.
Eric E. Huber, EarthJustice Legal Defense Fund, 400 Magazine Street, Suite 401, New Orleans, Louisiana 70130-2453, March 3, 2000

26.b.

COMMENT

Requested that EPA advise when the WLAs have been corrected.

Eric E. Huber, EarthJustice Legal Defense Fund, 400 Magazine Street, Suite 401, New Orleans, Louisiana 70130-2453, March 3, 2000

FEBRUARY 28, 2001

Public Participation Activity Conducted:

On February 8, 2000, EPA Region 4 published an abbreviated public notice in the legal advertising section of the Atlanta Journal Constitution. Additionally, Region 4 mailed detailed public notices to the Georgia Environmental Protection Division (EPD), the Plaintiffs in the Georgia total maximum daily load (TMDL) lawsuit against EPA (Sierra Club et al. v. Hankinson et al., 1:94-cv-2501-MHS), and persons, identified as potentially interested parties, on a mailing list maintained by Region 4. This public notice requested comments from the public (in writing by no later than March 10, 2000) on EPA's proposed mercury TMDL for the following water segments and § 303(d) listed pollutants of concern:

Savannah River Basin

Savannah River (Clarks Hill Lake to Stevens Creek Dam) - fish consumption guidelines
Savannah River (Stevens Creek Dam to US Highway 78/278) - fish consumption guidelines
Savannah River (US Highway 78/278 to Butler Creek) - fish consumption guidelines
Savannah River (Butler Creek to McBean Creek) - fish consumption guidelines
Savannah River (McBean Creek to Screven County Line) - fish consumption guidelines
Savannah River (Brier Creek to Ebenezer Creek) - mercury
Savannah River (Brier Creek to Ebenezer Creek) - fish consumption guidelines
Savannah River (Ebenezer Creek to Tide Gate) - fish consumption guidelines

On March 13, 2000, EPA published a notice of extension of the comment period for the proposed TMDL. This was done in response to several requests for an extension. At the time of the March 13, notice, the public was invited to provide comments on the proposed TMDL or to offer new data and information regarding the proposed TMDL in writing by no later than April 10, 2000. Region 4 mailed copies of the March 13, public notice to the Georgia EPD, the Plaintiffs in the Georgia TMDL lawsuit against EPA, and persons, identified as potentially interested parties, on a mailing list maintained by Region 4.

On June 23, 2000, EPA Region 4 published an abbreviated public notice in the legal advertising section of the Atlanta Journal Constitution, The Valdosta Daily Times, The Augusta Chronicle, and The Brunswick News. Region 4 mailed copies of the June 23, public notice to the Georgia EPD, the Plaintiffs in the Georgia TMDL lawsuit against EPA, and persons, identified as potentially interested parties, on a mailing list maintained by Region 4. EPA announced that it intended to revise the proposed mercury TMDL for the eight Savannah River segments and that a July 20, 2000 public information meeting would be held in order for EPA to present a sampling plan for collecting ambient mercury concentrations in fish, water column, river sediments, and soils using a low level detection method and for EPA to present its revised approach for developing a mercury TMDL for the middle

FEBRUARY 28, 2001

and lower segments of the Savannah River. This public information meeting was held on July 20, in Martinez, Georgia.

On October 11, 2000, EPA published an abbreviated public notice in the legal advertising section of the Atlanta Journal Constitution and The Augusta Chronicle. EPA Region 4 mailed copies of the October 11, public notice to the Georgia EPD, the Plaintiffs in the Georgia TMDL lawsuit against EPA, and persons, identified as potentially interested parties, on a mailing list maintained by Region 4. Additionally, Region 4 transmitted copies of the sampling data to a number of interested persons on November 1, 2000. The October 11, notice informed the public of a November 8, 2000 public information meeting. This public meeting was held in Grovetown, Georgia, on the scheduled date. EPA presented the results of recent field sampling and analyses of mercury in water, fish tissue, soil, and sediment in the Savannah River Basin, and EPA presented its revised approach for developing a mercury TMDL for the middle and lower segments of the Savannah River.

On December 8, 2000, EPA Region 4 published an abbreviated public notice in the legal advertising section of the Atlanta Journal Constitution, The Augusta Chronicle, and the Savannah Morning News. Region 4 mailed detailed public notices to the Georgia EPD, the Plaintiffs in the Georgia TMDL lawsuit against EPA, and persons, identified as potentially interested parties, on a mailing list maintained by Region 4. This public notice requested comments from the public (in writing by no later than January 22, 2001) on EPA's revised, proposed mercury TMDL for the Savannah River from Clarks Hill Lake Dam to the Tide Gate.

Matters on Which Public Was Consulted:

As a result of settlement negotiations in the Georgia TMDL lawsuit against EPA (Sierra Club et al. v. Hankinson et al., 1:94-cv-2501-MHS), EPA had the following commitment:

“If Georgia fails to propose for public comment by June 30, 1999, TMDLs for each waterbody identified in Georgia’s 1998 Section 303(d) list, whether such Section 303(d) list is prepared by Georgia or by EPA, that is impacted by a NPDES permitted point source or point sources, and that is located in the Savannah/Ogeechee Basins, then EPA shall propose such TMDLs by August 30, 1999. In the event EPA proposes such TMDLs, EPA will establish TMDLs following public notice and comment within a reasonable time, and, where significant comment is not received, expects to establish TMDLs by February 28, 2000, unless Georgia submits and EPA approves such TMDLs prior to EPA establishing such TMDLs.”

The public was consulted on a proposed mercury TMDL for waters on Georgia’s § 303(d) list. EPA Region 4 had received and evaluated water quality-related data and information about these

FEBRUARY 28, 2001

waters and pollutant and had prepared documents supporting the preliminary determinations of these evaluations.

Summary of Public's Comments:

A number of people contacted the EPA Region 4 offices, during the various public comment periods, to request information. The following is a brief summary of those contacts by the public:

1. Bob Hyland
Olin Corporation
Charleston, Tennessee
February 11, 2000

requested information about how the proposed mercury TMDL for the Savannah River is suppose to work.

2. Bill Edwards, City Manager
City of Hinesville
Hinesville, Georgia
February 14, 2000

requested information about the February 8, 2000 public notice.

3. Michelle Woolfolk
North Carolina Division of Water Quality
Raleigh, North Carolina
February 14, 2000

requested information about the risk assessment associated with the new human health based mercury target.

4. Diane Reed
North Carolina Division of Water Quality
Raleigh, North Carolina
February 14, 2000

requested that she be contacted by the technical writer of the proposed mercury TMDL for the

FEBRUARY 28, 2001

Savannah River.

FEBRUARY 28, 2001

5. Bob Hyland
Olin Corporation
Charleston, Tennessee
February 15, 2000

requested information about the proposed mercury TMDL for the Savannah River.

6. John Wellborn
US Army
February 15, 2000

requested information about what water quality data or information EPA has on the Savannah River segment from Butler Creek to McBean Creek.

7. Bob Hyland
Olin Corporation
Charleston, Tennessee
February 17, 2000

requested that he be contacted by the technical writer of the proposed mercury TMDL for the Savannah River.

8. Adrienne Taylor
Stateside Associates
Arlington, Virginia
March 8, 2000

requested technical information about the proposed mercury TMDL for the Savannah River.

9. Alvin McGrath
City of Savannah
Savannah, Georgia
March 10, 2000

requested information about submitting written comments concerning the proposed mercury TMDL for the Savannah River.

FEBRUARY 28, 2001

10. Karen Solomon
US Fish and Wildlife Service
Brunswick, Georgia
March 21, 2000

requested a copy of the proposed mercury TMDL for the Savannah River.

11. Flinda Hill
Mississippi Power Company
Gulfport, Mississippi
April 7, 2000

requested a copy of the proposed mercury TMDL for the Savannah River.

12. Jim Mackey
April 11, 2000

requested information about the comment period for the proposed mercury TMDL for the Savannah River and the submittal of comments.

13. Bob Hyland
Olin Corporation
Charleston, Tennessee
April 19, 2000

requested a copy of the written comments, on the proposed mercury TMDL for the Savannah River, prepared by the State of Georgia.

14. Dale Bignell, Manager
Environmental Protection Division
Westinghouse / SRS
Aiken, South Carolina
June 20, 2000

participated in a meeting with EPA representatives to discuss the proposed mercury TMDL for the Savannah River.

FEBRUARY 28, 2001

15. Karen Solomon
US Fish and Wildlife Service
Brunswick, Georgia
July 6, 2000

requested copy of the June 23, 2000 proposed sampling plan.

16. Vicky Yarbrough
Georgia Environmental Protection Division
Atlanta, Georgia
July 12, 2000

requested driving directions to the Valdosta, Georgia meeting (on July 18, 2000).

17. David Dean
Ogden Environmental and Energy Services
Marietta, Georgia
July 17, 2000

requested driving directions to the Brunswick, Georgia meeting (on July 17, 2000).

18. Douglas Gilbert
Florida Department of Environmental Protection
July 18, 2000

requested driving directions to the Valdosta, Georgia meeting (on July 18, 2000).

19. Jim Hill
Soil and Water Conservation
Athens, Georgia
July 19, 2000

requested information about the July 20, 2000 public information meeting.

20. William Kent
July 19, 2000

requested information about the July 20, 2000 public information meeting and a written summary of the ambient sampling plan and revised approach for the mercury TMDL.

FEBRUARY 28, 2001

FEBRUARY 28, 2001

21. Clint Moyer
Georgia Environmental Protection Division
Atlanta, Georgia
July 19, 2000

requested driving directions to the July 20, 2000 public meeting.

22. Robert W. Hyland
Olin Chlor Alkali Products
Charleston, Tennessee
July 21, 2000

requested information about EPA's sampling plan for the mercury TMDL for the Savannah River.

23. Annette Carter
July 24, 2000

requested that EPA contact Tracy Richardson, Channel 12, to discuss the mercury sampling for the Savannah River.

24. Rick Parrish
Southern Environmental Law Center
Charlottesville, Virginia
July 25, 2000

requested a copy of the proposed mercury TMDL for the Savannah River.

25. Bob Hyland
Olin Corporation
Charleston, Tennessee
August 24, 2000

requested copy of the overheads that were presented at a July 20, 2000 meeting in Augusta, Georgia.

FEBRUARY 28, 2001

26. Bernd Kahn
Georgia Institute of Technology
Atlanta, Georgia
September 11, 2000

requested information about TMDL development in the State of Georgia and about the mercury TMDL for the Savannah River.

27. Mary McWaters
October 16, 2000

requested information about the location of the November 8, 2000 public information meeting.

28. Rob Pierce
Stateside Associates
October 17, 2000

requested information about the location and time of the November 8, 2000 public information meeting.

29. Al McGrath
City of Savannah
Savannah, Georgia
October 17, 2000

requested information about any plans for a public information meeting similar to the one planned for November 8, 2000 and scheduled in south Georgia.

30. Larry Turner
South Carolina Bureau of Water
Columbia, South Carolina
October 18, 2000

requested driving directions to the location of the November 8, 2000 public information meeting.

FEBRUARY 28, 2001

31. David Dean
Ogden Environmental and Energy Services
Marietta, Georgia
October 24, 2000

requested information about commenting on the proposed TMDL and the driving directions to the location of the November 8, 2000 public information meeting.

32. Robin Quale
City of Savannah
Savannah, Georgia
October 30, 2000

indicated that Bobby Jones, Lab Supervisor for the City of Savannah, would be attending the November 8, 2000 public information meeting.

33. Randy Powell
Jacob Parsons Engineering Science
October 30, 2000

requested information about the status of the proposed mercury TMDL for the middle and lower Savannah River.

34. Ann Marie Stack
Bouhan, Williams & Levy LLP
Savannah, Georgia
October 31, 2000

requested information about the location of the tide gate for the Savannah River.

35. Randy Palachek
November 1, 2000

requested information concerning how to review comments, received by EPA, about the proposed mercury TMDL for the Savannah River.

36. Mike Rorick
November 6, 2000

FEBRUARY 28, 2001

requested information about the November 8, 2000 public information meeting.

FEBRUARY 28, 2001

37. Eugene Tsai
November 7, 2000

requested copies of comments EPA had received concerning the proposed mercury TMDL for the Savannah River.

38. S. Booher
November 8, 2000

requested information about the State of Georgia's River Basin Management schedule.

39. William Kent
Columbus Water Works
Columbus, Georgia
November 9, 2000

requested a copy of the November 8, 2000 public meeting agenda, handouts, and sampling data.

40. Alan Hallum
Georgia Environmental Protection Division
Atlanta, Georgia
November 20, 2000

EPA Region 4 contacted Mr. Hallum with a request to consider additional ways to notify people about fish consumption guidelines. Mr. Hallum agreed to speak with State the toxicologist about other notification ideas (will investigate opportunities through the Health Department).

41. Frank Carl
Savannah River Basin Watershed Project
December 13, 2000

requested information about the source of the dry mercury deposition on the RELMAP near Estill, South Carolina, and about the denominator of the equation for WQT.

42. Dave Moore
Troutman Sanders
Atlanta, Georgia

FEBRUARY 28, 2001

December 14, 2000

requested electronic copy of the revised, proposed mercury Savannah River TMDL.

43. Chet Tisdale
King & Spalding
Atlanta, Georgia
December 22, 2000

requested a copy of the data for sampling of point source dischargers on the Savannah River.

44. Richard Wieckowicz
Florida Department of Environmental Protection
Tallahassee, Florida
January 9, 2001

requested electronic copy of the revised, proposed mercury TMDL for the Savannah River.

45. Charles Truax
Jasper Conservation District
Richland, South Carolina
January 16, 2001

requested answers to questions about the airborne sources of mercury and the air shed referred to in the proposed TMDL.

46. Rick McCloud
Savannah River Site
Aiken, South Carolina
January 18, 2001

requested an extension of the public comment period.

47. Lois Thompson
Department of Energy
January 19, 2001

requested an extension of the public comment period.

FEBRUARY 28, 2001

FEBRUARY 28, 2001

48. Ann Marie Stack
Savannah Electric
Savannah, Georgia
January 22, 2001

requested information about submitting comments concerning the December 8, 2000 revised, proposed mercury TMDL.

49. Paul Sowerborn
Westinghouse Savannah River Site
Aiken, South Carolina
January 22, 2001

requested information about submitting comments concerning the December 8, 2000 revised, proposed mercury TMDL.

The following persons visited the EPA Region 4 offices in order to review the administrative records for the proposed TMDL:

1. Marie A. Weber-Goeke
Ogden Environmental and Energy Services
Marietta, Georgia
February 16, 2000
2. Charlie Merrill
Olin Chlor Alkali Products
Charleston, Tennessee
February 24, 2000
3. Dave Moore
Troutman Sanders
Atlanta, Georgia
September 22, 2000
4. representative of Charles H. Tisdale, Jr.
King & Spalding
Atlanta, Georgia
September 25, 2000

FEBRUARY 28, 2001

FEBRUARY 28, 2001

5. Dave Moore
Troutman Sanders
Atlanta, Georgia
January 4, 2001

The following persons provided a written request to review the administrative record during the public comment period:

1. Marie A. Weber-Goeke
Ogden Environmental and Energy Services
1395 South Marietta Parkway
Building 300, Suite 210
Marietta, Georgia 30067
February 10, 2000
2. R. W. Hyland, Manager
Environmental Services
Olin Chlor Alkali Products
Post Office Box 248
1186 Lower River Road, NW
Charleston, Tennessee 37310
February 16, 2000
3. David M. Moore
Troutman Sanders LLP
Bank of America Plaza
600 Peachtree Street, N.E. - Suite 5200
Atlanta, Georgia 30308-2216
September 13, 2000
4. Charles H. Tisdale, Jr.
King & Spalding
Atlanta, Georgia
September 22, 2000

The following person provided a written request for copies of the proposed TMDL during the public comment period:

1. Dave Moore

FEBRUARY 28, 2001

Troutman Sanders
Atlanta, Georgia
January 4, 2001

The following persons provided written comments during the public comment period:

1. Frank Carl
14501 Smith Road
Charlotte, North Carolina 28273
December 18, 2000
2. W. L. Payne
Environmental Protection Department
Westinghouse Savannah River Company LLC
Aiken, South Carolina 29808
January 17, 2001
3. H. Perry Holcomb, Ph. D.
1891 Green Forest Drive
North Augusta, South Carolina 29841-2173
January 18, 2001
4. T. W. Farrior, Jr., Manager
Safety, Environmental and Quality Control
Savannah Refinery
Citgo Asphalt Refining Company
Post Office Box 1881
Savannah, Georgia 31402-1881
January 19, 2001
5. James C. Taylor, Mill Manager
Beech Island Mill
Kimberly-Clark
1420 Sand Bar Ferry Road
Beech Island, South Carolina 29841
January 19, 2001
6. Gordon Service, Environmental Manager
Augusta Mill

FEBRUARY 28, 2001

International Paper
4278 Mike Padgett Highway
Post Office Box 1425
Augusta, Georgia 30903-1425
January 19, 2001

7. Kesler T. Roberts
Georgia Legal Watch
264 North Jackson Street
Athens, Georgia 30606
January 22, 2001
8. Beth A. Harvey (Fredric P. Andes)
Barnes & Thornburg
January 22, 2001
9. Ann Marie Stack
Bouhan, Williams & Levy LLP
The Armstrong House
447 Bull Street
Post Office Box 2139
Savannah, Georgia 31402-2139
January 22, 2001
10. Michael E. Wilder, Water Resources Workgroup Chair, and
Terry D. Snell, GA PE, Chair
Georgia Industry Environmental Coalition
3200 Town Point Drive, NW, Suite 100
Kennesaw, Georgia 30144
January 22, 2001
11. Charles H. Tisdale, Jr.
King & Spalding
191 Peachtree Street
Atlanta, Georgia 30303-1763
January 22, 2001
12. Robin J. Reash, Chair
Water Quality Committee

FEBRUARY 28, 2001

Utility Water Act Group
1900 K Street, N.W.
Washington, D.C. 20006
January 22, 2001

FEBRUARY 28, 2001

13. M. E. Wilder, Land and Water Programs Manager
Environmental Affairs
Georgia Power
Bin 10221
241 Ralph McGill Boulevard NE
Atlanta, Georgia 30308-3374
January 22, 2001
14. Karen Patterson, Chairperson, and
Jimmy Mackey, Chair, Environmental Remediation Committee
Savannah River Site Citizens Advisory Board
January 22, 2001
15. Gregory W. Blount
Troutman Sanders LLP
Bank of America Plaza
600 Peachtree Street, NE, Suite 5200
Atlanta, Georgia 30308-2216
January 22, 2001
16. Patricia T. Barmeyer
King & Spalding
191 Peachtree Street
Atlanta, Georgia 30303-1763
January 22, 2001
17. Marian Bard, Chairman
Technical Committee
Georgia Pulp and Paper Association
999 Peachtree Street, NE
Atlanta, Georgia 30309-3996
January 22, 2001
18. Mark Ferguson
Environmental Services
SCANA Services, Inc.
1426 Main Street
Columbia, South Carolina 29201
January 22, 2001

FEBRUARY 28, 2001

FEBRUARY 28, 2001

19. T. Mayes Starke, P.E.
Georgia-Pacific Corporation
133 Peachtree Street NE
Post Office Box 105605
Atlanta, Georgia 30348-5606
January 22, 2001
20. R. W. Hyland, Manager
Environmental Services
Olin Chlor Alkali
1186 Lower River Road
Post Office Box 248
Charleston, Tennessee 37310
January 22, 2001
21. Perry Holcomb
1891 Green Forest Drive
North Augusta, South Carolina 29841-2173
January 29, 2001 (electronic mail)
22. Andy Lawrence, Director
Office of Environmental Policy and Guidance
U. S. Department of Energy
Washington, DC
February 1, 2001
23. R. W. Hyland, Manager
Environmental Services
Olin Chlor Alkali Products
1186 Lower River Road, NW
Post Office Box 248
Charleston, Tennessee 37310-0248
February 16, 2001
24. Pat Stevens, Chief
Environmental Planning
Atlanta Regional Commission
40 Courtland Street, NE
Atlanta, Georgia 30303

FEBRUARY 28, 2001

February 16, 2000

25. R. W. Hyland, Manager
Environmental Services
Olin Chlor Alkali Products
Post Office Box 248
1186 Lower River Road, NW
Charleston, Tennessee 37310-0248
February 22, 2000
26. W. L. Payne
Environmental Protection Department
Westinghouse Savannah River Company LLC
Aiken, South Carolina 29808
February 23, 2000
27. Eric E. Huber
EarthJustice Legal Defense Fund
400 Magazine Street, Suite 401
New Orleans, Louisiana 70130-2453
March 3, 2000
28. Ruth Swanek, Supervisor, and
Michelle Woolfolk
Modeling / TMDL Unit
Division of Water Quality
North Carolina Department of Environment and Natural Resources
1617 Mail Service Center
Raleigh, North Carolina 27699-1617
March 7, 2000
29. Frank Carl
2040 Bridgewater Drive
Augusta, Georgia 30907
March 8, 2000
30. R. W. Hyland, Manager

FEBRUARY 28, 2001

Environmental Services
Olin Chlor Alkali Products
1186 Lower River Road NW
Post Office Box 248
Charleston, Tennessee 37310
March 27, 2000

31. T. Mayes Starke, P.E.
Georgia-Pacific Corporation
133 Peachtree Street NE
Post Office Box 105605
Atlanta, Georgia 30348-5605
April 5, 2000
32. W. L. Payne
Environmental Protection Department
Westinghouse Savannah River Company LLC
Aiken, South Carolina 29808
April 6, 2000
33. Douglas P. Haines, Executive Director
Georgia Legal Watch
264 North Jackson Street
Athens, Georgia 30601
April 6, 2000
34. R. W. Hyland, Manager
Environmental Services
Olin Chlor Alkali Products
1186 Lower River Road NW
Post Office Box 248
Charleston, Tennessee 37310-0248
April 7, 2000
35. Alan W. Hallum, Chief
Water Protection Branch
Georgia Environmental Protection Division
4220 International Parkway, Suite 101
Atlanta, Georgia 30354

FEBRUARY 28, 2001

April 7, 2000

36. Joe J. Mayhew, Vice President
Regulatory and Technical Affairs
Chemical Manufacturers Association
1300 Wilson Boulevard
Arlington, Virginia 22209
April 10, 2000
37. Alton C. Boozer, Chief
Bureau of Water
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201-1708
April 10, 2000
38. Jimmy N. Mackey
3019 Ratel Drive
Beaufort, South Carolina 29902
April 10, 2000
39. Michael E. Wilder, Water Resources Workgroup Chair, and
James R. Baker, Chair
Georgia Industry Environmental Coalition
3200 Town Point Drive, NW, Suite 100
Kennesaw, Georgia 30144
April 10, 2000
40. Fredric P. Andes
Barnes & Thornburg
2610 Madison Plaza
200 West Madison
Chicago, Illinois 60606
April 10, 2000
41. Mark Hoeke, Director
Government Affairs
Association of Metropolitan Sewerage Agencies

FEBRUARY 28, 2001

1816 Jefferson Place, NW
Washington, DC 20036-2505
April 10, 2000

42. Jerry Schwartz, Senior Director
Water Quality Programs
American Forest and Paper Association
1111 Nineteenth Street, NW, Suite 800
Washington, DC 20036
April 10, 2000

FEBRUARY 28, 2001

43. Robert W. Hyland, Manager
Environmental Services
Olin Chlor Alkali Products
1186 Lower River Road
Post Office Box 248
Charleston, Tennessee 37310-0248
July 24, 2000
44. W. L. Payne
Environmental Protection Department
Westinghouse Savannah River Company LLC
Aiken, South Carolina 29808
August 21, 2000
45. R. W. Hyland, Manager
Environmental Services
Olin Chemicals
1186 Lower River Road
Post Office Box 248
Charleston, Tennessee 37310
August 28, 2000
46. Gordon Service, Environmental Manager
Augusta Mill
International Paper
4278 Mike Padgett Highway
Post Office Box 1425
Augusta, Georgia 30903-1425
November 6, 2000
47. W. L. Payne
Environmental Protection Department
Westinghouse Savannah River Company LLC
Aiken, South Carolina 29808
November 21, 2000

It should be noted that all of the aforementioned requests for information, data, documents, etc., were responded to in a timely manner (typically, within 24 hours of the request).

FEBRUARY 28, 2001

Description of the Effectiveness of the Public Participation Program:

The public participation process in the matter of EPA's establishment of total maximum daily loads for a pollutant and waters in the State of Georgia was considered to be an important one. The number of comments received from the public, including the Georgia Environmental Protection Division and local organizations, was significant. This alone demonstrates that the opportunity for public participation in this matter was effective.